Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Sound Waves, Telephone Magazine and The Telephone

Vol. XIX **CHICAGO, SATURDAY, MAY 28, 1910** **No. 22**

PUBLISHED EVERY SATURDAY BY THE

Telephony Publishing Company

Monadnock Block, Chicago

H. B. McMeal, President — F. S. Kenfield, 1st Vice-President
W. H. Graffis, 2d Vice-President — H. D. Fargo, Secretary-Treasurer

Edited by H. B. McMeal and Franklin H. Reed

Associate Editor, Stanley R. Edwards

Contributing Editors

Max W. Zabel, Patent Dept. — J. C. Kelsey, Financial Dept.
A. H. McMillan, Legal Dept. — A. B. Smith, Technical Dept.

The present publication comprises: The Telephone, Telephone Magazine, Sound Waves, American Telephone Journal and Telephony.
Vol. 19 — No. 22

TERMS OF SUBSCRIPTION:

United States, Cuba and Mexico.....per year, $3.00
Canada 4.00
Other Foreign Countries within the Postal Union..... 5.00

NOTICE TO ADVERTISERS

Changes of advertising copy should reach the office ten days in advance of date of issue. New advertisements accepted up to noon of Thursday for the paper dated Saturday of the same week.

Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

CHICAGO, ILL., SATURDAY, MAY 28, 1910.

CONTENTS.

Editorial 663
Telephony in the United States Army.....665
The Chicago Rate Investigation.....668
Systematizing Recording and Cost Accounting of Trouble. By A. J. Page.....671
Interference with Telephone Transmission by Railway Power Circuits 673
Some Bell Humor. By J. C. Kelsey.....674
Valuation of Telephone Property. By W. C. Polk.....677
Practical Letters from the Readers.....680, 681
A Prosperous Company in the Ontario Mining District.....682
Legal Questions and Decisions. By A. H. MacMillan.....685
Queries from the Field.....686, 687
In the Operating Field.....687, 688, 689
Work of the Patent Office. By Max W. Zabel.....689, 690
In the Manufacturing Field.....691, 692
Purdee—An Up and Going Man.....693
Condensed News Reports 694, 695
In the Rural Line Districts.....696

The Demand for an Independent Telephone Financial Institution.

European houses for financing electrical industries, in the securities of which they specialize, were mentioned in these columns a few weeks ago. They have been a distinct and invaluable factor in the development of high-grade electrical projects. It was recalled that there has been more or less fruitless talk of an Independent financial house, which has probably never materialized because the demand for its services has never been sufficiently concerted, or vigorous, to give men of the requisite experience and standing courage to put their shoulders to the wheel.

The following letter, received by TELEPHONY this week, typifies the situation of the operators of many small telephone exchanges:

"Do you know of any reliable people who could loan us money on our plant? We have a fine, well-equipped, up-to-date, paying plant, growing and earning 20 per cent yearly. But our town is growing, and we have to use profits to keep pace with extensions and additions. We have a proposition upon which we are willing to submit an engineer's report, and pay for expense of examination, but we want to deal only with reliable parties who can and will bond our plant on an honest basis."

The telephone industry is entering on a new period of rapid expansion. In the next few years Independent properties are going to advance their securities to a high plane in the investment market. But before this can take place, in the fullest measure, new machinery will have to be made available to aid the small operator, who, although familiar with the technical details of management, feels the need of reliable outside experience in financial matters. It is high time to start things in motion.

Municipal Telephone Regulation, and Other Types.

Competition has reduced rates and improved service by the threat of the law of the survival of the fittest. Inefficiency of employes, or avarice of investors, will alike cause a loss of business to the rival company. This shows up directly in the broad financial reports which are closely scanned by the executive officers, who can compel a change.

The purpose of state or municipal regulation is to benefit the public by forcing reductions in rates and improvements in service, while protecting the investor against unjust and ill-advised demands of ignorant or greedy users of the service. A great

question before the country relates to the effectiveness of the regulative method as a supplement to competition.

Chicago is now engaged in the experiment of municipal regulation, and the success or failure of its efforts is a matter of national interest. A state appointive body, whose members are able men, sure of a long tenure of office, can make a more deliberate investigation than a city council. It can use its own employes, and should have a cumulative efficiency, derived from a progressive increase in its knowledge of general and local conditions governing the industry under its supervision. It may not only compel an unwilling management to improve, but aid a willing management to adopt better methods, after competition in other places has caused their development, and proved their worth.

Conditions of municipal investigation are more likely to force the supervising body to approach its task as a trading proposition. The members of a council may balance a question of rates on the point of view of a class of users who have many votes, or another class who pay heavy taxes.

A prominent telephone man has said "the question at issue in Chicago is whether the council will 'play fair' with the telephone company." It is this, and something greater than this. It is first a question of getting results; and then it is a question of laying down a foundation of method which will establish the principle that municipal regulation can not only reveal secret leaks, or extravagance, if they exist, but can point the way to progress in a broad sense. Regulation will have to be more than a battle of wits in a trade. Municipal regulation will have to rise out of the horse swapping class to live. Can Chicago start the movement?

What the telephone has wrought in the past is but a fair index of what it will accomplish in the future.

Branch Exchange Service in Department Stores.

Every chief operator has had, at some time in his experience, complaint of, and difficulty with private branch exchange service in department stores. Generally these complaints culminate in a strenuous talk from the store manager, who bewails the inefficiency of the telephone company, and tells what his operator has said of the service. This operator, by the way, is frequently a discharged employe of the telephone company, who delights, in her own unsupervised position, in "throwing it into" her former associates. The chief operator, if he knows his business, will then do two things. He will calm the anger of the department store manager, and put the trunk lines up for observation for a week, informing the store manager that he will report to him personally.

Intelligent observation will then show that the department store telephone service has two glaring flaults in it. In the first place, the trunks are all busy a great deal of the time. That is easy; they should have more trunks, you say. But, think again; they may not be obtaining high efficiency from those they have. The operating at the branch exchange may be so poor that it costs them one or two trunks a year.

One trouble seems almost too ridiculous to touch upon, but it is so serious that it becomes necessary to mention it. The average store manager cannot bear to see his telephone operator sitting at the board idle. So, in order to fill in her time, he gives her some other work to do, such as bookkeeping, stenography, or typewriting. We once went into a department store and saw the telephone operator doing up bundles, while in another she had all the errand girls sitting in the telephone room, and was required to keep them in order. The store manager must have the visible customer served, but the invisible telephone customer has to wait until such a store is passed up in disgust, and another one is called and given the order.

The private branch exchange operator should do telephone operating, and nothing else, or the business is not large enough for such service. One consequence of these foreign duties is that the store operator fails to clear her trunks, and they are closed to the customer for minutes at a time. At the main office they are passed up to the trouble operator, or the wire chief, for clearance, according to the local routine in use. The branch exchange operator is frequently left to her own devices because no one knows enough about her work to correct her. She is not even under the supervision of the floor walker, as she should be.

A pair of wires should be run from her telephone to the desk of the superintendent, or department manager, in order that they may listen unknown to her. This consciousness of probable unknown listening supervision has a great moral effect on the operator, and will continue to have as long as the art and human nature remain as they are. One resultant of no supervision of the store operator is a falling off of her observance of telephone etiquette. Her tone becomes impatient or cross, and too reflective of her own depressed moods. Instead of answering her calls by saying, "This is Smith-Jones Co.", she falls into the obsolete and nerve racking "Hello," or growls out "Well," until the telephone customer is driven away.

We will now suppose that the service from an operating standpoint is good. If stop-watch observations continue to show all trunks busy, and the central office operators are giving continued busy reports, it is fair to presume that there is a shortage of trunks. The observer must make a note of the conversations going on, in order to determine whether they are of a business or social nature. Such observations have frequently shown store managers that the employes were using their telephones and lines for purely social diversions, thus closing them to the incoming customer. This, of course, is a matter entirely within the control of department store discipline. In the case of a legitimate shortage of trunks, a good contract agent armed with the result of the chief operator's observations, showing length of time all trunks were busy, number of busy reports given per day, and any other pertinent information, can easily sell the store more wires.

When the department store has overcome these two faults, poor operating, and insufficient facilities, then will its telephone service become a thing of profit and a joy to its customers.

It's good to have money and the things that money can buy; but it's good, too, to check up once in a while and make sure you haven't lost the things that money can't buy.

Telephony in the United States Army

The report of Brigadier-General James Allen, chief signal officer of the U. S. Army, who has courteously furnished the accompanying photographs for TELEPHONY readers, to the Secretary of War contains the following matter of interest to telephone men:

Telephone Systems.

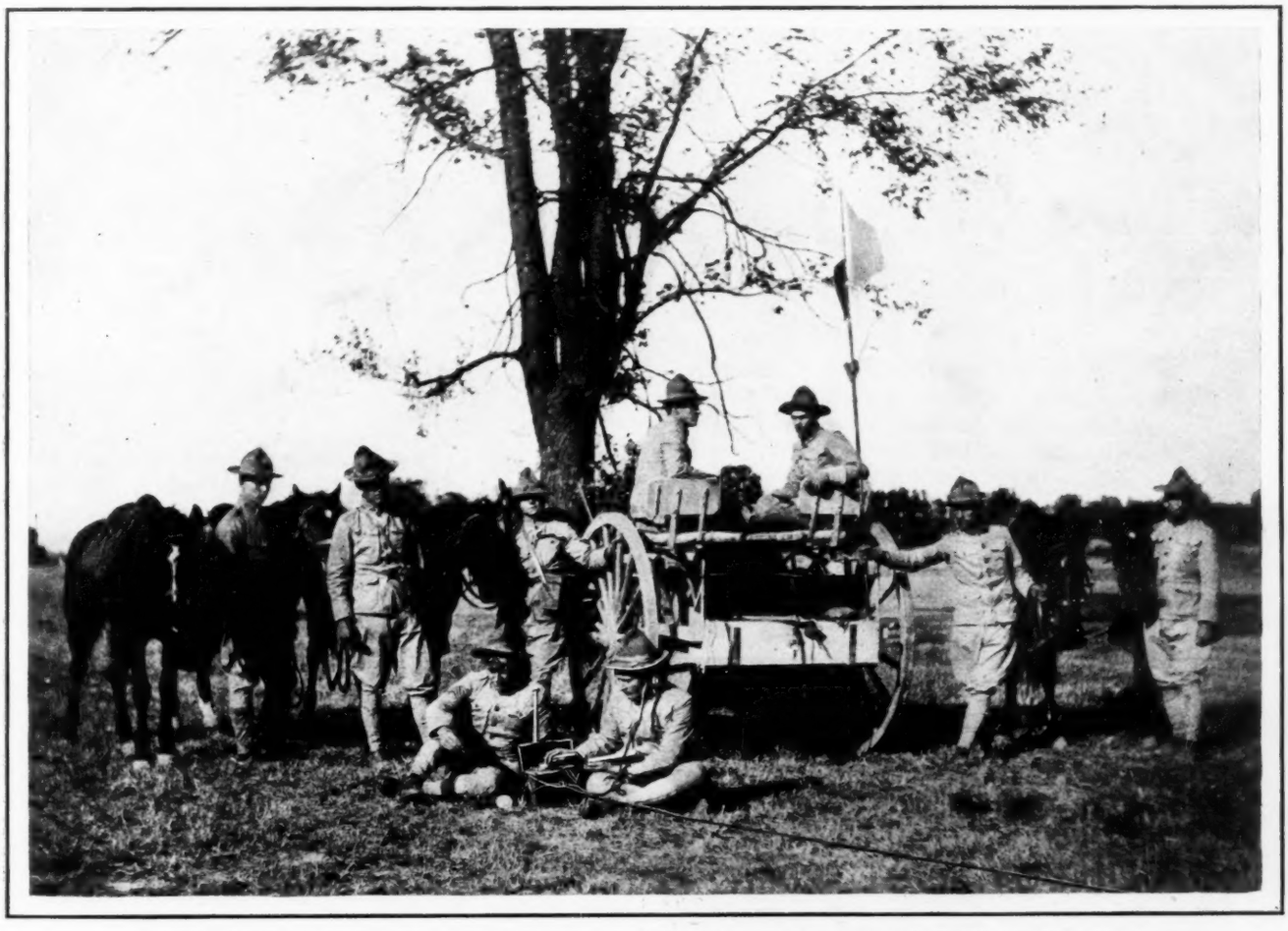
The following telephone systems were reconstructed during the year: Camp Eldridge, Camp Keithley, Camp McGrath, Malabang, Camp Jossman, Camp Wallace, Camp Wilhelm, Camp Stotsenburg, Fort William McKinley. Temporary systems were installed at Fort Mills and Fort Wint. Complete new instrumental equipments of telephones were ordered for installation at Iloilo, Camp Jossman, Camp Keithley, post of Jolo, Parang, Malabang, and Camp Overton. The military telephone system at Iloilo was entirely rebuilt. The post telephone systems in the Department of the Visayas, with the exception of Camp Jossman and the system in the city of Iloilo, are to be rehabilitated during the coming year.

The military telephone system in the city of Manila was dismantled under authority of the division commander dated June 18, 1908, with the exception of a 10-drop switchboard in the orderly room at Cuartel de Infanteria. This board furnishes connection with Fort William McKinley, division headquarters at Fort Santiago, headquarters Department of Luzon at Estado Mayor, the signal corps wireless station in Manila, signal corps machine shops, corral, office of Company F, Signal Corps, and the city commercial lines.

Telephone systems were in operation at Camps Bumpus, Connell, Darago, Downes, Eldridge, Gregg, John Hay, Jossman, Keithley, McGrath, Overton, Stotsenburg, Vicars, Wallace and Wilhelm, Fort William McKinley, Iloilo, Jolo, Malabang, Manila, Parang, Warwick Barracks, and Zamboanga, with 403 telephones and comprising 384.5 miles of line. Long-distance telephone lines were operated between Cotabato and Fort Pikit, Malabang and Camp Vicars, Camp Keithley and Camp Overton, and Abuyog and Dulag, a total mileage of 104.

Post Telephone Systems.

Realizing that efficient telephone communication is as essential in the transaction of military business as in the commercial world, it has been the policy of the Signal Corps to construct modern underground common-battery systems at the larger posts as rapidly as funds become available. Modern underground systems of the type prescribed by General Orders, No. 170, War Department, 1908, were installed this year at Fort Oglethorpe, Ga., Fort Benjamin Harrison, Ind., Fort Riley, Kans., Fort Myer, Va., Fort Adams, Mass., Fort H. G. Wright, N. Y., Fort Terry, N. Y., Fort Washington, Md., Fort Moultrie, S. C., Fort Screven, Ga., Fort Howard, Md., and Fort Barrancas, Fla. The equipment installed at these posts has been the best obtainable. Plans were also prepared for similar systems to be installed at Fort Logan, Colo., Fort Des Moines, Iowa, and Fort Snelling, Minn., during the summer of 1909. At present 36 posts in the United States are provided with the extended systems contemplated by General Orders, No. 170, War Department, 1908. Lack of funds has restricted the remaining posts to the equipment prescribed in General Orders, No. 97, War Department, 1906.



A Detachment of a Signal Corps Field Company with Communication Established with Headquarters.

An effort has been made to secure more rigid inspection of all telephone systems at posts, with a view to increasing efficiency of operation and maintenance.

The telephone line from Yellowstone Lake to Sylvan Pass, a distance of 28 miles, was constructed during the period from July 1 to September 27, 1908. The work on this line was very difficult owing to the mountainous, heavily timbered, and rocky country through which the line passes. The following outlying stations in the Yellowstone National Park have communication with each other and with Fort Yellowstone over military lines: Soda Butte, Tower Falls, Norris, Canyon, Lake, Thumb and Snake River, and Sylvan Pass. Fort Yellowstone also has telephone communication with Gardiner, Mont., a distance of five miles. Riverside station is in communication with Upper Basin station over a line of about 18 miles.

Target Ranges.

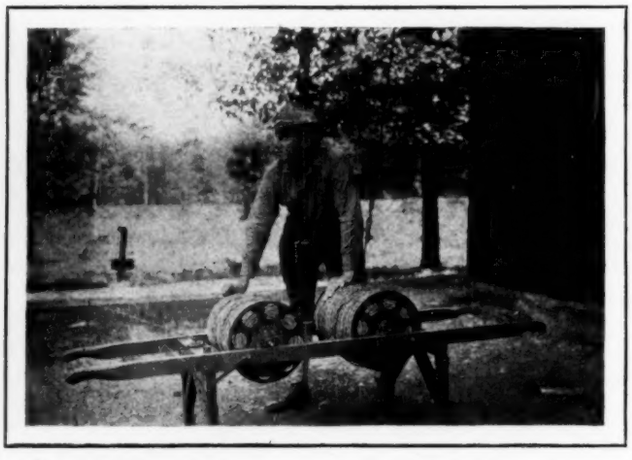
Good reports have been received from the subterranean telephone systems installed at post target ranges. These systems provide telephone communication between the various ranges and the target butts. These systems have been installed at 57 posts in the United States.

During the year plans have been perfected and material purchased for the installation of annunciator buzzer system at eight of the largest posts of the army. These systems include a push button at each firing point which will ring a buzzer at the target fired at, additional telephone communication, and special arrangements for sending signals to all targets during rapid fire. All circuits and connection boxes will be underground and not interfere with the use of the target range for drill purposes. These systems will be installed at Forts D. A. Russell, Sheridan, Riley, Leavenworth, Sam Houston, Ethan Allen, Niagara, and the Presidio of Monterey.

Fire-Control Equipment for Field Artillery.

The Signal Corps has endeavored to improve the efficiency of the electrical signaling equipment for the fire-control system of the field artillery which is prescribed in General Orders, No. 150, War Department, 1909. The increasing use of indirect fire and the necessity for complete control over fire and direction when several batteries are operating under the command of one officer has rendered the equipment issued by the Signal Corps of considerable importance.

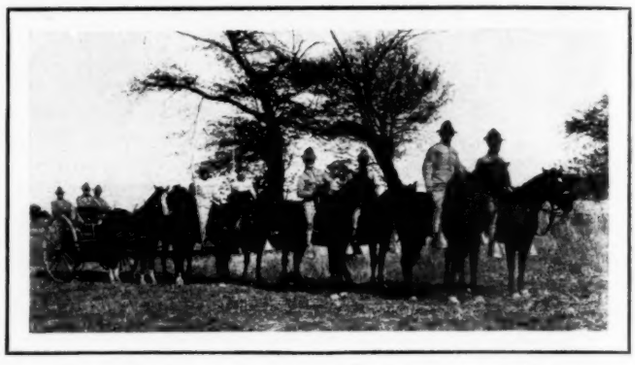
Based on the recommendations of the field artillery board at



Reel for Telephone Wire in Use by the U. S. Signal Corps.

Fort Riley, Kans., the Signal Corps has commenced the issue of cavalry buzzers instead of telephones and has purchased a supply of special twin-conductor cable for issue in lieu of the field wire formerly supplied to battalion and regimental headquarters. A new type of field artillery telephone has been devised at the Army Signal School. A few of these telephones have been made and sent to the field artillery board at Fort Riley for experiment and trial.

Effort has been made during the year to increase the efficiency of the portable wireless field sets for use with the mobile army, and experiments have been recently conducted at the Army Service schools, Fort Leavenworth, Kans., in which,



Section of a Signal Corps Field Company Ready for Laying a Field Telephone or Telegraph Line.

with extremely simplified apparatus, rapidity of installation and reliability have been attained to a remarkable extent. These experiments will be continued with a view of attaining in actual practice the proper sphere of usefulness of wireless in tactical field operations, and of discovering to what extent this method of communication may supplement or supplant the present field-wire system using field buzzers.

Radiotelephony.

For a number of years scientific investigators and inventors have been working upon the problem of transmitting articulate speech directly through the medium of the ether without intervening wires, and such progress has been made that it may be safely stated that wireless telephony today is further advanced than wireless telegraphy was ten years ago. Indeed, the theory is relatively much better understood.

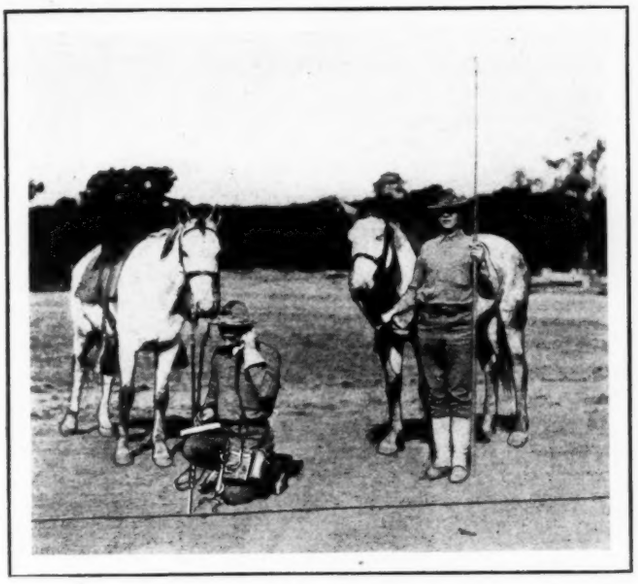
Under an allotment from the Board of Ordnance and Fortification, dated November 7, 1907, the Signal Office purchased one complete set of wireless telephone equipment, comprising two stations. At the request of the Chief of Coast Artillery these stations were installed at Fort Monroe, Va., for test and experiment under the direction of the artillery board.

The army appropriation act approved March 3, 1909, contained an item for the purchase and development of wireless telephone apparatus, which became available July 1, 1909, and, accordingly, steps have been taken to initiate the development of equipment in this direction on a more extended scale than has heretofore been possible on account of lack of funds.

It became evident some years since that the attainment of practical success in wireless telephony depended upon devising some method of producing undamped electro-magnetic waves in the transmitter, and a receiver which should be quantitative in its action.

As is now well known, in wireless telegraphy a single dot made by closing the Morse key produces in the transmitting apparatus a series of electro-magnetic wave trains which proceed outward over the surface of the earth with the velocity of light and with the transmitting antenna as the center of ether disturbances. Each of these wave trains has a strong damping factor, and after a very few oscillations the individual waves are reduced to an amplitude which is generally a small fraction of the initial amplitude. In making the dots and dashes of the Morse code by wireless telegraphy, the period of the actual oscillations is so small that the wave trains are separated by intervals of time which are generally very long in comparison with the whole duration of a single train. To illustrate: If the periodic time of the oscillating circuit is, say, one five-hundred-thousandth of a second, and if each

group of oscillations or wave train consists of fifty complete cycles and the interruptions are made at the rate of one hundred per second, then the time during which oscillations are actually taking place would be only about 1 per cent of the whole time involved, since fifty times one five-hundred-thousandth is only one hundredth part of a hundredth of a second.



Members of the Signal Corps Receiving Orders Over the Field Telephone Line.

It has been an object for some years to discover some method of producing continuously maintained electro-magnetic oscillations of a frequency sufficiently great to be applicable to wireless transmission of intelligence. The frequency of oscillations involved may reach several millions per second, so that the natural period obtained in the discharge of condensers and inductances may be utilized for such purposes, but, as stated above, the natural oscillations produced in this manner rapidly die out unless some means may be discovered to produce, instead of rapidly decadent wave trains, a continuous train of sustained oscillations in the oscillating circuit.

Thus far two methods have been employed for generating sustained electrical oscillations which have attained a certain degree of success. First, the principle of the "singing arc." Second, specially constructed high-frequency dynamos.

The first method depends upon the discovery of Thomson and Duddell, that if an electric arc be shunted with a suitable inductance and capacity in series, and the arc operated by a direct current, under certain conditions there is formed a closed oscillatory circuit with a frequency sufficiently high to give electro-magnetic waves suitable for wireless transmission of intelligence. The arc and the arrangement of circuits must be subjected to definite conditions to produce this oscillatory effect. The arc has usually, though not necessarily, one metallic electrode, such as copper, as an anode, and the other electrode is made of specially prepared noncored carbon. The arc itself may be placed in a vessel containing hydrogen or some other gas, such as alcohol vapor or illuminating gas.

Connected with the inductance in the oscillatory circuit by magnetic coupling, is the secondary coil leading to the antenna wire and to earth.

The telephone transmitter used in wireless telephony is identical in principle with the ordinary commercial telephone transmitter, except that it has special provision for cooling, either by circulation of water or by ventilation with air. The reason for this is that when the transmitter is inserted directly in the antenna circuit it must be capable of carrying the actual current which the transmitting arc produces in the antenna. This current often reaches the value of several amperes, as shown by an ammeter placed in the circuit. Although it is possible to insert the transmitter at such a point in the antenna that the current flowing through that point will be a minimum, yet this is not practicable, since the node point of current in the antenna is normally at the extreme top of the antenna, so that in practice the transmitter must be constructed to carry a considerable current. Another reason, however, prevents the transmitter from being placed at the node of current in the antenna, since at this point the potential would be a maximum, which would prevent the use of a telephone transmitter based on using carbon granules, so that in practice the transmitter is inserted near the potential node in the antenna, which is at the point of connection between the antenna and the earth, and is cooled by artificial means as outlined above.

High-Frequency Alternator.

A condition for success in transmitting speech by electric waves is that there shall be no interruptions in the undamped oscillations below a frequency that is equal to the upper limit of that producing audible sounds. If we are able to produce a dynamo giving a frequency of forty or fifty thousand per second, or above, we may be assured that, however the telephone diaphragm may be affected by such a frequency, the limits of the human ear would prevent its producing any physiological sensation.

The mechanical difficulties in constructing such high-frequency generators are great, yet such progress has been made that it is possible at present to produce a 2-kilowatt generator giving a frequency of 100,000 per second. The attainment of this result involves the use of a rotor of about 1 foot in diameter, operated at a speed of 333 revolutions per second. This means that the peripheral speed of the rotor is 1,046 fet per second, or 714 miles per hour; in other words, this disk would roll from the United States to Europe in four hours. Such a frequency generates electro-magnetic waves with a wave length of 1.86 miles, which is suitable for wireless telephony.

The dynamo method offers considerable promise for the future, since the apparatus is much simplified and there is no arc or spark to be controlled in any way.

KEEP A GOIN' ON.

"If the day looks kinder gloomy
An' your chances kinder slim,
If the situation's puzzlin'
An' the prospects awful grim,
An' perplexities keep pressin'
'Till all hope is nearly gone,
Just bristle up and grit your teeth,
An' keep on keepin' on."

—The Telephone Bulletin.

Moral—Buy Your Own Paper.

A man who was too economical to subscribe for his home paper sent his little boy to borrow the copy taken by his neighbor. In his haste the boy ran over a four-dollar stand of bees and in ten minutes looked like a warty summer squash. His cries reached his father, who ran to his assistance, and, failing to notice a barbed wire fence, ran into it, breaking it down, cutting a handful of flesh from his anatomy and ruining a five-dollar pair of pants. The old cow took advantage of the gap in the fence and got into the cornfield and killed herself eating corn. Hearing the racket the wife ran, upset a four-gallon churn of rich cream into a basket of kittens, drowning the whole flock. In her hurry she dropped a twenty-five dollar set of false teeth. The baby, left alone, crawled through the spilled cream and into the parlor, ruining a twenty-dollar carpet. During the excitement the eldest daughter ran away with the hired man, the dog broke up eleven sitting hens, and the calves got out and chewed the tails off four fine shirts.—*Kansas City Journal.*

The Chicago Rate Investigation

The question of approving the rates now charged by the Chicago Telephone Company, or of revising them for a period of years, is now before the committee on Gas, Oil and Electric Light of the Chicago city council. The report published in TELEPHONY last week, coming from engineers and accountants, has been granted a warm, but in no sense a very cordial reception by the committee. With the exception of some figures in the nature of possible omissions, submitted by the comptroller, no matter tending to show definite unreliability was offered. During the two hearings of last week the report and the experts furnished the basis for discussion, and the committee did not get very close to the telephone company. Arthur Young & Co., the accountants who, joined with D. C. & Wm. B. Jackson, made the report, were the cause of a motion to throw out the report at the hearing on May 20. A sub-committee was appointed to see if the report shall be used, or supplemented by further investigation. It was suddenly discovered that during the time they were working for the city, investigating the books of the Chicago Telephone Company to see if its rates could be reduced, and for some years previous, they had been employed to audit its books by the telephone company itself.

This firm had been originally employed for the city by Comptroller Wilson at the suggestion of three leading newspapers.

The absence of newspaper comment in the Chicago dailies may be a testimonial to the success of the kind of advertising instituted by the Chicago Telephone Company. This is being conducted on the plan of choking the editors with their own fair words. So far not a line has appeared to post the public on the significance of the matter before the council, or on figures obtained from the operations of telephone companies in other cities. The council committee, however, has not shown any disposition to use dark lantern methods.

If it goes into expenses in detail it will probably have a chance to find out how the American Telephone & Telegraph Company prospers so highly on an income for toll business and fees for parental advice drawn from Chicago and other cities, while local subsidiaries are unable to report prosperity. The purchasing contracts with the manufacturing branch and relation of the reserve funds maintained by the A. T. & T. Co., which seems to act on occasion as a general credit reservoir for subsidiary companies, to the depreciation requirements of the Chicago Telephone Company, may come up for discussion if the committee is really "from Missouri."

The depreciation question has already involved the committee in a fog of information, and has tripped President B. E. Sunny for the customary fall enjoyed by Bell telephone officials whenever they feel obliged to tell about their practice.

A Joke on President Sunny.

Thursday morning, May 26, the Chicago *Tribune* printed three sets of valuation figures, claimed to have been based on statements furnished by President B. E. Sunny, of the Chicago Telephone Company. These were as follows:

Valuation for taxation	**$12,000,000**
Valuation to stockholders	**19,000,000**
Valuation to council committee	**23,000,000**

The article goes on to refer to President B. E. Sunny's ability to accomplish the hop from his low "junkpile" valuation of the Chicago Telephone Company's tangible property to his high estimate of the same property under differing circumstances.

"Mr. Sunny's poor opinion of the valuation of the telephone corporation's assets was placed on view by him when testifying before the special legislative committee, headed by Representative Charles Lederer, appointed to inquire into inequalities of taxation. His more optimistic view was attained last Friday, when, addressing the council committee of which Ald. Pringle is chairman, he said that the company had invested something like $23,000,000 in its plant, which, however, could not now be replaced for much less than $30,000,000, owing to higher prices of materials.

"Of course, he urged, the company's stockholders are entitled to a fair return on their 'investment.'

"It was on September 14 last that President Sunny spoke as follows to the Lederer committee:

"'While our properties in Cook county cost $19,000,000, accumulated through a period of nineteen years, they have depreciated in value. A portion of the property is worn out. So, if we took an inventory on the 1st of April, 1909, to find out what was the actual worth of the property in its then condition, it would be in the neighborhood of the return we made (to the board of assessment) of about $12,000,000. As near as I can make out that is the basis on which all assessments of personal property are made.'

"'How did the last statement issued to your stockholders,' asked Chairman Lederer, 'compare with the assessment you had placed on your property by the board of review?'

"'The statement,' replied Mr. Sunny, 'shows our Cook county property valued at $19,722,659.'"

Following is an abstract of the interesting sections of the proceedings to date in this investigation:

Mr. Willard, of Comptroller Wilson's office, called attention to three items which he believed should be put in the report, viz., earnings from real estate, toll earnings and miscellaneous earnings, including interest on a heavy cash balance. The reports to the comptroller for the last half of the year 1909 showed toll earnings of $543,816.83.

President B. E. Sunny, of the Chicago Telephone Company, mentioned that the big balance referred to the Chicago Telephone Company as a whole. It had not been appropriated for city or suburban use. The engineers and accountants set aside $750,000 as a working capital out of the $3,780,000 total cash balance mentioned by the comptroller.

Speaking of an inventory, President Sunny said it would cost $50,000 to $75,000, take about a year, and would probably push up the valuation figures above those shown in the report by $10 to $25 per station. If the inventory should have this result the city should, in justice, give the Chicago Telephone Company rates to furnish a fair return on this higher investment, not only interest on the investment, but a proportionately higher allowance for depreciation.

Ald. Pringle: "Is the report satisfactory to the company?"

Mr. Sunny: "It is and it is not. It is one of the most scientific investigations and reports ever made. The engineers and accountants have had absolute free run of the books and accounts of the company. I have no doubt their deductions are accurate."

Here Mr. Sunny took exceptions to what he assumed to be the theory of the report, saying: "The idea that the rates for each class of service ought to bear a uniform relation to the cost of the service, we cannot apply practically to the telephone industry, or in fact to any other business It cannot be applied to the telephone business any more than it can to that of a railroad or a department store. In none of these businesses has it been the practice to figure up the cost and add a uniform advance. Rates have been based, not on the exact cost, but on what the various classes of patrons could afford to pay for the service. Proceeding along the lines of charging in proportion to the cost the company would have to increase the rates 50 per cent to 80,000 users of the low-rate service. The nickel service produces $22 per station per year. If the company were obliged to put this on a self-supporting basis by a $29 rate, it would lose one-half of these subscribers. The nickel service telephones form a class which is a very important feeder to the business service. The value of the telephone exchange as a whole depends upon having the most complete subscribers' list it is possible to have. A telephone on a farm 150 miles away is of value to the Chicago subscribers; as when, for example, a farmer wishes to buy an automobile, and the salesman in Chicago wishes to reach him promptly. The nickel telephones are valuable to the business subscribers down town. Collaterally the nickel service is not a losing proposition; by themselves these telephones show a loss."

Ald. Merriam: "I understand you paid one-half your last dividend out of the depreciation reserves. Has that been the ordinary practice?"

Mr. Sunny: "It is the engineers who have set aside a certain percent as the rate of depreciation; the Chicago Telephone Company has never set aside any fixed percent."

Ald. Merriam: "What would be the average percent?"

Mr. Sunny: "I don't know. The company has set aside as a

reconstruction and maintenance reserve as much as it could spare after taking care of the dividends."

Ald. Merriam: "Why should we now allow the company a greater percent for the depreciation reserve than it has allowed itself in the past?"

Mr. Sunny: "It has been the practice in Chicago, until recently, to renew franchises on their expiration. Up to ten years ago public service corporations believed that they could get such a renewal. Now franchises are on a different basis. The Chicago telephone ordinance has reserved to the city the right to take over the company's property in 1919 or 1924, at the cost of duplication plus 5 per cent. We don't know what will happen at either of these expirations. The city may or may not grant a renewal of the franchise when it expires in 1927. We must adjust our capital on the basis of an appraisal value. We now have $20,000,000 of stock and $3,500,000 of bonds. The proceeds of any sale of the property would have to retire the stocks and bonds at par in justice to their holders. The earnings from year to year should pay expenses, a return on investment, and allow us to set aside a depreciation fund which will make the return from a sale of the property in 1919 liquidate all obligations."

Ald. Merriam: "I understand that this depreciation fund is not an available reserve; that it is invested in your plant."

Mr. Sunny: "Yes, the depreciation fund is invested in the plant, thus putting the company in a strong position with respect to the ratio of assets and liabilities."

Here General Manager Hibbard broke in with an illustration of the method of charging off depreciation. He mentioned that the company is now replacing a board which stands on the books at full valuation as long as it gives service, but on the day it is replaced the value of the old board, some $60,000, will be charged off to depreciation. When material is taken out the junk value is credited to the plant account. The earning power is reckoned on the original value as entered in the books.

An Alderman: "For years past you have allowed certain amounts for depreciation; why should it be changed now?"

Mr. Sunny: "For two years past the reduced rates under the ordinance have not earned us enough to take care of depreciation."

Here aldermen Dever and Pringle took up the question of why the depreciation rate should be changed at present. The query being on the lines that the telephone company has been paying dividends and reporting to the stockholders for years, on the basis that 4 per cent would take care of depreciation, yet now it says depreciation ought to be marked up to 7 per cent. Which was the correct basis?

Mr. Sunny: "The telephone company has not told stockholders at any time what amount was set aside for depreciation."

Ald. Pringle: "The records of the company shows the justice of an 8 per cent dividend. This report presented by the engineers and accountants shows that an 8 per cent dividend is not proper. Which is correct?"

Mr. Sunny: "On the theory that the company ought to have set aside 7 per cent for depreciation, this report would be incorrect. But this would be impracticable. No company I know of has set aside a specific amount for depreciation and published it."

Here Alderman Merriam expressed the view that he was not satisfied that the report was sufficiently ample to regulate rates, and Mr. Wm. B. Jackson was called upon to answer some questions of the committee.

He explained that his firm had one man on the job continuously for a year, a second man for some months, and a third man part of the time, and that he personally put a great deal of time on the work. It was absolutely essential for one or the other of the heads of the firm to be in touch with the work all the time as the plan of the report was entirely new, and they had no basis to work upon and were obliged to originate their own methods. He took up the theory of the work correcting the impression which Mr. Sunny had mentioned.

"We do not say the cost of each separate class of service must bear a uniform ratio to earnings, but one must know what the cost of supplying each class of service is before intelligent regulation can be made. The plan adopted shows what the different classes are costing the company. In our opinion, the report does furnish a basis upon which rates may be regulated intelligently. We can bring forward ample records to show details, as the report is condensed from a great volume of such detail records."

When questioned on the subject of depreciation Mr. Jackson said that the plant was comparatively new today. "It has doubled in the last four years."

An Alderman: "Do you know whether the company has been taking care of its depreciation properly?"

Mr. Jackson: "We don't know whether the company has an appropriate depreciation account."

Ald. Long: "You say the depreciation fund must be sufficient to renew the plant. Has this expense of doubling the telephones come out of the depreciation fund?"

Mr. Jackson: "The cost comes out of the capital account. The depreciation fund has been invested in the company's property. Of course part of the expense of doubling the plant represents investment out of the depreciation fund. I don't know what part comes out of the depreciation fund and what is capital investment."

"The ratio of increase of subscribers is gradually diminishing; the volume of increase is enlarging. The company has many dollars worth of underground cable. Few cables have seen the end of their useful life, but they are all coming to it, hence the depreciation fund is necessary."

Mr. Jackson testified that they had used the 3 per cent trust fund basis in figuring depreciation, and Alderman Merriam queried, "They get 8 per cent, so the rate of accummulation is altogether different?"

Mr. Jackson: "Are you going to require any company to put its depreciation fund into plant?"

Here followed more or less desultory discussion as to the correspondence of an accumulated reserve with the fiscal life of the plant, and the effect of figuring depreciation on the straight line or sinking fund basis.

In response to queries Mr. Jackson testified that he did not check the theoretical depreciation with the actual plant. The only way this could be done would be by making a check of the plant piece by piece. The Special Commission, whose depreciation figures were adopted, studied this.

The toll earnings were left out of the report because it seemed that they were not a proper matter for regulation by the city. The toll plant of $900,000 was left out, as were also the toll earnings of $543,000 collected on "out" business.

Mr. Hibbard mentioned that the comptroller's reports cover originating Chicago business only. That the $543,000 represented the gross receipts for the last six months of the year 1909 so that the total yearly business would be, comparatively, twice $543,000.

On the second day of the hearing the committee came together all primed to make things lively for the experts.

Alderman Long said his understanding was that the real estate, toll and miscellaneous earnings report to the comptroller, but not included in the report of the engineers and accountants, amounted to $500,000 per year.

Mr. Sunny then came forward with some notes on depreciation, stating the charges of the Chicago Telephone Company, as a whole, for depreciation during several years.

These were the amounts actually expended for reconstruction. Mr. Jackson then came forward to tell something of the methods of checking up the plant upon which his report was based. The engineers made an attempt to verify the plant as of June 30, 1909. They took the charges as shown in the company's books, thus obtaining a check of the records of the auditor's office against those of the plant department, also including the engineer's cost figures in the check.

The values were taken as set by the engineering department of the company then gone over by the engineering department, and the city's engineers jointly. The books did not show the value of the plant piece by piece hence it was necessary to build up these values from the compilation of the company's plant records. The different items of the plant were checked with the records furnished by the company. Thus, for example, the manholes were checked with the records, certain cables were selected and checked out from beginning to end, etc. Central office switchboards were also checked with the records, and private branch exchanges.

Ald. Pringle: "Would the report not be of more value if the original figures had been obtained from one source and checked up from another source?"

Mr. Jackson: "The accounts of material were obtained from the plant department, and the estimates of cost from the engineering departments. We checked the samples of the plant against the records and checked the cost figures from data in our possession."

Ald. Merriam: "Except so far as you revised the figures you simply checked one department of the company against another?"

Mr. Jackson: "Yes."

Ald. Merriam: "Did you reduce the company's figures in many cases?"

Mr. Jackson: "Sometimes we found them high, sometimes low."

Ald. Merriam: "On what basis did you compute cost?"

Mr. Jackson: "On the basis of figures from our files and costs obtained from other sources."

Ald. Pringle: "How far was it possible for you to check the figures from your own experience?"

Mr. Jackson: "The auditor's figures were checked on the basis of the total cost per station. Figures from the engineer were checked as individual items."

Ald. Dever: "The prices assigned were largely estimates of the value?"

Mr. Jackson: "Yes."

Here followed an extended discussion of whether account should be taken of depreciation in the engineer's figures.

Mr. Jackson asserted that it should not be. Depreciation would not play any part in the investment.

Ald. Pringle: "If you make the depreciation amount larger you benefit the company, and add to the cost of the service to the subscribers. If you put in property at the cost value you assist the company rather than the subscriber. It seems to me the subscribers are getting the worst of it at both ends."

Mr. Jackson: "The entire intent and result of this investigation has been to weigh matters fairly from the standpoint of the company and the standpoint of the people. Many intricate problems were involved in the investigation and we believe that they have been solved fairly all around."

Ald. Merriam: "They have been solved by the raising of the rates $1,000,000 a year?"

Mr. Jackson: "If any items have been left out of the report which should be included and they are brought to our attention we will be frank in saying they ought to be included."

Mr. Jackson then took up the question of justice of taking the

cost value in the appraisal. The study was made on the basis of an appraisal value for replacement. A depreciated value would not do as the basis of appraisal. The plant would run down year by year in earning capacity. Then a company would have to start out anew at double earning capacity. A company cannot live if its capital is gone at the end of the life of its property.

Ald. Dever: "Do you think the company can declare 8 per cent next year?"

Mr. Jackson: "It is recognized, I believe, that the present rates were put in force as an experimental matter. With depreciation properly figured they might not bring the results expected. If it were understood that rates were to be adjusted so that a fair return could be made, dividends might be justified.

Ald. Long: "Then the original cost must always be the basis of income?"

Mr. Jackson: "Yes."

Ald. Long: "Would it not be fair to assume that due to the progress of the art the apparatus will be cheapened from 40 to 60 per cent during 15 years?"

Mr. Jackson: "If the plant were to be replaced by apparatus more expensive it would be necessary to add to the capital account. If the new apparatus were less expensive it would give the company a surplus available for adding new plant."

Ald. Long: "Why set 3 per cent as your interest figure on the depreciation fund?"

Mr. Jackson: "Because this is a fair trust interest."

Ald. Long: "Why not charge the prevailing rate?"

Mr. Jackson: "The reserve ought to be an absolutely unassailable investment. If you start fair and the reserve grows too fast you can reduce the rates the next time the question comes up for consideration under the ordinance. The reserve is just as likely to be a little low in five years as high, on a 7 per cent basis. Depreciation and obsolescence are uncertain things, but you get a pretty definite result when figuring on the plant part by part."

Comptroller Wilson had submitted a statement showing a wide variation of conditions relating to investment per station and dividends and earnings on other telephone property. This prompted Ald. Pringle to inquire to what extent the engineers had been able to use their knowledge of other systems in preparing their figures.

Mr. Jackson mentioned the Massachusetts investigation in which the firm has recently taken part.

Ald. Merriam: "Massachusetts took 6 per cent as the basis of earnings?"

Mr. Jackson: "Yes."

Ald. Merriam: "Then you take the existing rate of dividends as the proper return?"

Mr. Jackson: "Yes."

Ald. Merriam: "But you do not take the existing rate of depreciation, apparently?"

Mr. Jackson: "There has been no existing rate."

Compt. Wilson: "A depreciation reserve at 5 per cent a year at compound interest would build a new plant within approximately 20 years. A rate of 7 per cent compounded would build a new plant in 12 years. Would the Chicago plant wear out in 12 years?"

Ald. Dever: "Would the whole investment be gone in 12 years? We know that some parts would last longer and some wear out three or four times, but would the whole investment be gone in that time?"

Mr. Jackson: "Assuming 12 years is the life of a plant the company would have to lay aside sufficient funds to replace it at the end of that time."

Ald. Dever: "What parts of the plant would wear out in less than 12 years?"

Mr. Jackson: "Central office switchboards would wear out in 8 years. These represent one-sixth of the total cost."

Ald. Dever: "Any other parts wear out in less than 12 years?"

Mr. Jackson: "Subscribers' stations in about 10 years."

A few other items of this sort were mentioned.

Ald. Pringle: "Suppose the telephone company had paid 13 per cent. Would you have allowed 13 per cent as a return?"

Mr. Jackson: "We would have shown what percent they could pay on the investment at the present rates. We have no thought of fixing any percent as a proper return. We have simply shown results. It is a matter for you to determine what is a fair percent."

Ald. Pringle: "But what is your opinion as to a fair return? Do you think it should be 8 per cent in Chicago and only 6 in Boston?"

Mr. Jackson: "It is my opinion that in the west, where things are being done, the per cent of return is usually larger than in older established states."

Ald. Pringle: "How about tolls? Should not they come in as part of the earnings?"

Ald. Merriam: "Was this item of $750,000 working capital established by the engineers or accountants?"

Mr. Jackson: "I would prefer to leave the explanation of its derivation to the accountants."

Mr. Sutherland, of Arthur Young & Company: "The basis assigned was figured on the requirements of a company which began to do business. We figured that we would have to furnish such a company money enough to conduct its business for one and a half months."

Here Mr. Sunny offered some data on working capital, saying that the working capital of the telephone company is $1,000,000. "The amount runs down the early part of the month and increases toward the end. It is absolutely correct to allow $750,000. The average receipts per month are $500,000, collected from the 5th to the 15th of the month following that in which they come due. The company has a very large pay roll, being obliged to pay out 60 per cent of its gross receipts for labor, material, etc. We use up $450,000 per month. The $3,000,000, the amount mentioned in the Comptroller's communication, was the proceeds of a sale of bonds, which was in the hands of the company two years ago. It has been spent."

Ald. Merriam: "How far do you use your credit?"

Mr. Sunny: "Since we sold $5,000,000 of bonds we have had cash on hand and used it."

Ald. Merriam: "What fund have you built up from subscribers' deposits in the last year and a half?"

Mr. Sunny: "A total of $165,000, of which $35,000 has been returned to subscribers. It has taken nearly two years to build up $80,000."

Ald. Pringle to Mr. Jackson: "What do you figure depreciation on?"

Mr. Jackson: "Different items, value for value."

An Alderman: "Have Arthur Young & Company ever made reports for the telephone company?"

Mr. Sutherland: "Yes, for the last few years. By a few years I mean 6 or 7 years."

Here Mr. Sutherland appeared embarrassed and Mr. Sunny began to look interested and rub his chin.

An Alderman: "Then you had the telephone company's figures in hand. How did you happen to get $5,000 for this report from the City?"

Mr. Sutherland: "We did not have all the figures in hand. There was a great deal of detail work necessary for the City's report."

An Alderman: "Then Arthur Young & Company were working for the telephone company and the City at the same time? Mr. Jackson, were you in the employ of the telephone company at the same time you were working for the City?"

Mr. Jackson: "No."

Ald. Pringle: "Mr. Sutherland, did you ever tell the telephone company they were not setting aside enough for depreciation?"

Mr. Sutherland: "We did not think it was our vocation to determine their policy."

Ald. Long: "When you were working both for the telephone company and the City, how did you determine which interest you would represent?"

Ald. Dever: "You made this report in conjunction with other employes of the telephone company?"

Here everyone was speaking together, and Mr. Sutherland apparently made no definite answers. He said a few words in a low tone.

Mr. Wilson then arose and explained how Arthur Young & Company had been employed by his department for some time. The finance committee made a contract with them for directing the City's accounts for a certain sum less than other accountants had been paid. They had also worked for Mr. Wilson personally, and from his experience with them he felt Arthur Young & Company to be absolutely reliable, and that they would be more competent to handle the City's work on account of their experience with the telephone company. He felt safe in employing them.

Mr. Sunny arose and said he was surprised that it was not generally known that Arthur Young & Company had been certified accountants for the telephone company; that for some years the company has sent out a printed report to shareholders, newspapers and other persons interested, and that Arthur Young & Company's name appeared in this book year after year.

Ald. Long: "It is news to me. In all my experience as a business man and a lawyer I have never heard of a case where a lawyer representing a client would employ an accountant who also represented the person on the other side. I have no idea or intent of reflecting on the conduct of any persons, but as far as I am concerned, I wouldn't give a rap for that report. I think we are wasting our time here considering it. We ought to have a report that would satisfy us."

Ald. Pringle: "I agree with Alderman Long that there is no intent to reflect on any person, but it is my opinion that there will be a great deal of prejudice on the part of the general public if we act on the report prepared under these circumstances."

Mr. Sunny fingered his chin faster than ever at this point.

Here Alderman Long made a motion to arrange for an investigation sufficiently thorough to warrant the committee in regulating rates.

Alderman Merriam moved that a sub-committee be appointed to determine what should be done in the matter. Aldermen Merriam, Long and Chairman Pringle constituted this sub-committee, which is to report back to the whole committee.

At the close of the hearing Mr. Hibbard remarked to a bystander that the report was solidly based on facts shown to the City's experts, and that any new investigation, or checking by new experts, could only demonstrate that the facts were there, and had been shown.

At a late hour before going to press TELEPHONY understands that the sub-committee will report on Thursday, June 2, to the effect that the report of the experts is not sufficiently complete, and will require checking and supplementing by other accountants before the committee will be justified in proceeding to fix rates.

Systematizing Recording and Cost Accounting of Trouble*

By A. J. Page

What does it cost me to keep each individual telephone in repair, or how much does each individual telephone earn me per month? How many managers can answer that question definitely? I know of no more vital question that can be asked; no point that so closely affects the very existence of the system as the expense account. The net earnings are ever inversely proportional to it, and each item that makes a reduction in it means dollars in the stockholders' pocket.

If a careful account of the cost of trouble on each telephone were kept in the average exchange of one thousand lines or less, I have no hesitancy in saying that one would find that nine-tenths of the trouble occurs on two-fifths of the lines; or in other words, one could kill nine-tenths of the average exchange trouble by repairing and fixing up two-fifths of its lines. Again, one will find that over 80 per cent of trouble is line trouble, caused by the carelessness or negligence of the construction foreman and troubleman. But the small exchange manager, no doubt, says such a system would be top heavy for an exchange as small as his. It may be all right for the larger exchanges where they can afford to keep some one to look after it exclusively, but for him it would be a needless expense. He has only a few cases of trouble each day, he knows all his leads and it would be time and money wasted. But, is it really so? If it is important to the larger exchanges, is it not of equally vital importance to the small one?

He may think he knows his plant, exactly where each line runs and each telephone is located, but in the course of a year he forgets just how many times he knocks that cross out between 23 and 76, and just how many times 49 was grounded on that guy back of Jones's. If at the end of each month he could read at a glance just what kind and how many cases of trouble he had had on each individual telephone, I am sure that the story would be a considerable surprise.

Again, Sam Jones comes in to pay his bill. Sam is good but not very prompt; his rent has been running for fifteen months, and to him it looks like a big pile to pay out all at once for such "bum" telephone service, so he begins to think what he can do to get out of paying part of it. He remembers that last spring his telephone was out of service

BROWN TELEPHONE COMPANY---WIRE CHIEF'S DAILY TROUBLE REPORT.

Date..... 190....

Union Telephone and Telegraph Co.--Toll

NAME.	NO. HOURS.	NO. CASES.	AV. TIME.	COST TIME.	LIVERY.	COST.	R. R.	BOARD.	HELP.	INCD.	TOTAL.		REPORTS NOS. CLEARED

Brown Telephone Co.--Toll.

NAME.	NO. HOURS.	NO. CASES.	AV. TIME.	COST TIME.	LIVERY.	COST.	R. R.	BOARD.	HELP.	INCD.	TOTAL.		REPORTS NOS. CLEARED

Rural Lines.

NAME.	NO. HOURS.	NO. CASES.	AV. TIME.	COST TIME.	LIVERY.	COST.	R. R.	BOARD.	HELP.	INCD.	TOTAL.		REPORTS NOS. CLEARED

City Exchange.

NAME.	LINE	BAT.	INST.	S. B.		NO. MIN.	NO. CASES.	AV. TIME.	TIME Cost.	MTL. Cost.	Total.		Reports Nos. Cleared

Total Cost of Trouble——————

	U. T.	Toll	Rural	Local	S. B.	Total
No. Cases Carried Over						
No. Cases Reported Today						
Total to Clear						
No. Cases Cleared Today						
No. Cases Left Over						

		Nos. To Clear.
No. Orders Waiting List		
No. Orders Received Today		
Total to Install		
No. Telephones Installed		
No. Telephones Taken Out		

A Form Which Keeps the Manager in Touch with Maintenance at a Minimum Expenditure of His Time.

*Abstract of a paper presented at the annual convention of the Kansas Independent Telephone Association.

for six weeks, during which he had absolutely no service at all, and he most emphatically refuses to be held up in any such manner. The more he elaborates on his grievance the more real it becomes to him and unless one can convince him that he is wrong, there are only two things one can do; either make a lasting enemy of him or rebate

Form 34 5000 8-21-09 News **No.**.....

TROUBLE REPORT

The Brown Telephone Company.

Time..... Date.....

Phone No..... Name.....

Street..... No.....

1—Cross with Phone No..... Name.....
2—Does not ring from Central.....
3—Rings from Central but cannot get Phone no.....
4—Can ring Central but cannot get Phone No .....
5—Does not ring from Phone No .....
6—Rings both ways but cannot hear. . .....
7—Phone rings up but talks weak.....
8—Bells don't ring. .....
9—Phone cuts out.....
10—Bell at Phone rings but cannot get Central. .....
11—Lamp lights and stay per. .....
12—Reported by.....
13—. .....

Time Received .....Date..... .....Direction.....
Wire No.....Cable..... .....Term no.....X arm No.....
Trouble is.....
Assigned to .....Time.....O K. cleared .....C. O.....W. C

Date Repaired.....190.....Time Repaired.....
Time making repairs.....Time Phone was out.....
Nature of trouble.....
New material used. .....

Repaired by.....

Classified Reporting of Trouble is Easy with a Form Made Out Like This.

his bill. But if one has each case of trouble filed where one can instantly turn and show him a complete record of all the trouble on his line, the exact time each was reported, when it was cleared, and just how long he was out of service each time, with the aid of such a record one will have little trouble convincing him he is mistaken. His grievance will dwindle down to two or three cases when his telephone was out for but a few hours each time. He will leave satisfied, and with a respect for the system installed in his mind which will make him hesitate before he will exaggerate his telephone troubles in the future.

The items to consider in computing the cost of receiving, recording, clearing and filing, cases of trouble are several. First, the operator's and trouble clerk's time in receiving the complaint and ascertaining as nearly as possible the nature of the trouble from the subscriber and recording it on a suitable trouble slip; the wire chief's time in testing the line and determining the location of the trouble; the troubleman's time and expense in clearing, the material used, and the filing clerk's time in posting and filing the report as it is cleared, signed up and turned in. A comprehensive system would include all of these items with the possible exception of the first and last, which will be almost constant in all cases of trouble, of whatever nature.

We have worked out a system which, while it is still far from perfect, gives very good results. The report is made out in duplicate by the chief operator, who in most small exchanges must perform the duties of trouble clerk. One report goes to the wire chief, the other is turned into the office each evening, so that the manager can tell in a few moments exactly the number of cases and the nature of the trouble reported that day. On these slips the chief operator fills out the date and time reported, telephone number, subscriber's name, and, for her assistance, we have eleven general heads under some one of which nearly all of the principal trouble can be listed. Next are blanks for the wire chief to fill in the necessary information for the troubleman, including wire numbers, cable letter, terminal number, cation of trouble; also to whom assigned and a place for cross-arm and pin number, direction of lead, nature and lohis final O. K. when cleared. Lastly, a place for the troubleman to record the date and hour cleared, time and material used in making repairs, the nature of trouble and how long the instrument was out of service.

These slips are listed by the wire chief on a daily wire chief's report, and turned in with it each evening. This daily report gives a summary of each kind of trouble, toll, rural and local, the number of cases each man cleared, total time spent, average time put on case per man, expenses, total cost of trouble cleared that day, and the number of each kind still to clear.

The individual trouble slips are filed in a card index cabinet with a guide card for each telephone number, on which each case is posted as received by months. It not being possible to record the nature of the trouble in writing we have a code number system whereby it can be condensed, and one can still tell by a glance just the nature of each individual case and its cost to clear.

The expense of installing such a system is small as compared to its many uses which give an accurate record of the date and time of each complaint, when and by whom reported, by whom cleared, the exact nature of the trouble, and just how long the instrument was out of service.

Knowing overhead operating expenses per line, one can tell just how much each instrument has cost to maintain

FORM 44-REP. 8-18-09-5000

TROUBLE RECORD BROWN TELEPHONE CO.

Phone No. Make of Phone Kind of Ckt.

	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		TOTAL COST
	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	Tbl	Cost	FOR YEAR

This Report Shows the Reliability of Sub-Station Apparatus, and Work Done by the Maintenance Department.

and operate. The wire chief's daily report tells how much each individual troubleman is doing. The guide cards and slips tell the quantity of each man's work and its permanency. This last is no small item, as many a troubleman makes as much trouble as he clears, and as soon as one can

FORM NO. 36-SM-3-'10.

TOLL TROUBLE REPORT.

Brown ☐ *Home* ☐ *Union* ☐

Time ..... Date .....

Circuit No. ..... Trouble .....

Circuit Name ..... Operator.

At ..... test from ..... by .....

shows .....

At ..... sent ..... from .....

Date repaired ..... Time repaired .....

..... W. C. Hours circuit was out .....

Place of trouble .....

Nature of trouble .....

Cause of trouble .....

Went by .....

Distance from .....

Distance traveled .....

Time ..... Hrs. @		
Material used		
R. R. Fare		
Livery		
Board		
Incidental		
Total Expense		

No. ..... Repaired by .....

This Form Gives an Exceptionally Complete Check on Nature of Trouble, Its Effect on Service and Cost of Repair.

locate him and have him removed, the better it will be for the company and its patrons.

If the small exchange manager would once install a record of this kind he would soon become convinced of its value, and would no more think of giving it up than of discontinuing the keeping of his lease record.

Interference With Telephone Transmission By Railway Power Circuits.

At a meeting of the Boston Section of the American Institute of Electrical Engineers, Prof. Albert S. Richey, of the Worcester Polytechnic Institute, gave his experience with telephone lines paralleling high-tension circuits in the Central States. The railway lines he had in charge were supplied with direct-current power, the telephone wires being on one side of the track and the feeders on the other. These telephone lines were transposed about every half mile and jack boxes were installed every quarter mile for the use of the car-service men. These were simple wooden boxes, with the bottom and part of the front entirely open to the air. The connections for the telephone leads were on the back of the box, with two brass binding posts for the terminals. This construction in itself made a fair ground on the telephone service every quarter mile, but as the ground was the same on each wire, the circuit was well balanced and the results were good. When high-tension work began the line potential was 16,000 volts, paralleling almost 100 miles of the telephone service. The transmission wires were carried on the tops of 40-foot poles, with the telephone lines on the opposite side of the track. The service remained good, and later in building another 125 miles of transmission line for 30,000-volt service the telephone lines were installed in two sets on arms 10 feet below the power wires. The telephone line was transposed every 16 poles for convenience in further subdivision of the transposition if necessary. Little trouble was experienced. The transpositions were regular, the lines well balanced and the telephone wires were near the ground electrically by their location close to the direct-current feeders. Trouble occurred whenever there were bad connections in the line wires, which unbalanced the lines. Great care was taken to have the linemen make good connections in the telephone circuits and the company substituted for the old-fashioned transposition with two transposition glasses and from four to six joints in the line wire, a transposition with a single glass, which introduced no additional joints in the line wire. This was a decided help. If the transmission service was in trouble, the telephone lines felt it. Professor Richey closed with the statement that in the case cited the telephone and the railway companies have common interests and are equally concerned with establishing and maintaining good service.

Mr. C. D. W. Jarvis, of the New England Telephone & Telegraph Company, stated that on the company's long toll lines, in order to meet the conditions of the public and increase the range of transmission, it is necessary, not only to employ open wires, but also to minimize the effect of capacity on this open construction by loading. These open wires are exposed to the field surrounding railway and power circuits, and there is no way of escaping them; but in the local distribution the company can use large numbers of conductors covered with a common lead sheath, which screens the conductors at least from any ordinary power circuit. In case of single-phase railway operation, the company is having trouble with the cables. The sheath is not effective as a screen in that case. On some of the New York lines a neutralizing transformer has been adopted. One of the open wires exposed to the New Haven electrification is damaged so much that the company has lost the open-wire efficiency entirely and might as well have cable to replace the open wires. Experience in long-distance work in New England indicates that it will be necessary for the company to keep entirely away from electric light circuits. It is a question whether the company will be able to operate telephone lines on the same highway with power circuits. It is at present operating toll circuits in some cases for 10 miles parallel to power lines. Disturbances have not been entirely eliminated, although the telephone company is on the opposite side of the road. It has suffered repeatedly when there have been defects on the power system, the whole system often being at a standstill for several hours. In one case, where the two services parallel for five miles, the telephone lines have in the past year been thrown out of operation for three or four hours at a time. In this case the power circuit had a potential of 33,000 volts with a grounded neutral, and the induced current in the telephone lines was large enough to operate the arresters. It is not unlikely that the presence of power and lighting wires will ultimately drive the telephone company off the highways.

Postal Company Contracts With Kansas Independents.

A contract made between the Home Telephone & Telegraph Company, of Abilene, Kansas, and the Postal Telegraph & Cable Company will enable the latter to use the Home company's lines for telegraphic purposes. By this deal every telephone office on the lines of the Home company will become a telegraph office and the telephone subscribers will be enabled to telephone their telegrams, while it is possible to send a telephone message at the time a telegram is being transmitted. The Home company has now about 500 miles of wire, all No. 10 copper, and many stations will be reached that previously had not the means of telegraphic communication.

Some Bell Humor

Chicago Telephone Losing Money—Don't Laugh!—A Bell Stall—Too Much Reliance Upon Bell Books—A Sad Need for Common-Sense Study—Some Average A. T. & T. Costs.

By J. C. Kelsey

The Chicago Telephone Co., is confronted with a rate readjustment this year.

It knows well that justice demands more concessions to the city.

With true Bell disregard for the peoples' rights it has seized upon a belated excuse to ward off any reduction, by pleading a loss.

The company will be pleased to go right along with what it has now.

It is laying claims to reserves now to meet future demands, but it has no excuse for not having them already. It has $3,000,000 now, but it is in the liability columns, and that is not the place for it. Reserves should be in the asset column.

The Bell interests have preached and preached that they, and they alone, have not ignored depreciation.

They have every Chicago banker believing that Independent telephone properties are paying dividends out of stock sales, are neglecting maintenance even, and as far as depreciation is concerned, horrors! the Independents have none at all. It's a lie! and every Chicago banker with a single ray of sense can find it out.

Here we are, with the great octopus on its knees, crying because it has neglected depreciation, and wants to begin now to heed it at the people's expense.

In face of 24% dividends, later 12% and 10%, 9½% and 8%, in addition to great melons, they have the effrontery to cry out for a chance to pay attention to the reserves. They should have begun in 1882.

They are asking forgiveness for their sins, and now want to follow the example of Independent plants, and accumulate some real reserves.

If anything is done at all, the city should compel the principal stockholders to restore their ill-gotten gains to the treasury and classify them as reserves.

It will take sunny work, shady work and all kinds of work to convince the people of Chicago that the Bell is losing money.

In the Minneapolis case, the accountants found that the Bell plant had neglected depreciation, and now has to meet reconstruction for the year out of earnings for that year—a truly hand-to-mouth existence.

If the Chicago Telephone Co., is losing money, why can't the parent Bell company remit its levy of 4½ per cent of the year's gross earnings? This is a tidy sum and amounts nearly to $450,000 for 1909. Captain Kidd should be entirely extinct by now.

Why do the people of Chicago have to send nearly a half million dollars to Boston yearly? How long will they stand it? It is one of the most absurd conditions in the financial world. It is all done in broad daylight, too.

Why do the people pay $450,000 annually for the alleged rental of inferior telephones, when the Chicago Telephone Co. could buy better instruments in the open market?

The capitalization certainly is enough to cover the cost of complete instruments. Instruments are worth about $7.00 and the Bell parts are worth about $2.50, yet the company charges nearly $2 annual rental for them.

What is most astonishing, is the utter stupidity shown.

The A. T. & T. Co. depends upon its licensees for earnings. They are listed on the New York Stock Exchange, and their stock values are supported, too.

The Chicago Telephone Company is one of the Bell's best earners. Now we learn that it is losing money. Hold your nose!

Why does not this news affect the price of A. T. & T. Co. stock? It it were in railway circles, there would arise a great commotion and a decline in stock values, if one of the reputed best earners should show up a deficit.

But the ignorance of the various New York speculative interests is colossal, and they merely take the Bell word without analysis.

It is a great mystery how the Bell reports greater and greater earnings, and all the while some new licensee company is failing to hold its own.

The Western Electric Co., The Nebraska Telephone Co., the Central Union, the Missouri & Kansas, the Western Tel. & Tel., are examples of alleged unprofitable investments, yet the quarterly report of A. T. & T. Co. showed greater earnings than ever. Somebody is lying!

Once upon a time a Great Man died on the cross that men might have eternal life.

Evidently this is the reverse theory of the Bell, which seems to think that its licensees should die in order that it might live and pay 8%.

How the Bell have posed as a great white angel all these years among alleged financial lights, and not been found out, is a mystery.

What Chicago needs today is an investigation of the telephone octopus along proper lines.

The city has three principal things to do:

1st. Hire some experts who are or have been practical operators and builders.

2nd. Cut out that 4½ per cent gross earning tax by the Bell.

3rd. Make the Bell give the Chicago Telephone Co. proper credit as a great toll terminal.

The first condition is easy. There are a dozen capable men who can solve the situation.

The second condition is easy too. Is the Bell company entitled to nearly 100% interest upon its instrument investment? Does the Bell give the Chicago Telephone Co. any real assistance for that $450,000? That would keep thirty experts busy the year around at $50 a day. Have not the employes of the company any skill at all?

They certainly have, but they can't use it. The excuse of "standardization" gives the A. T. & T. Company a chance at another profit, in its controlled factory. And it actually has the nerve to put up a bluff that it earns its money.

Chicago telephone engineers, practical men, and attorneys do not have to go to New York for knowledge—only for

orders. They give the A. T. & T. experts as much good advice as they get. Chicago pays the bills going and coming.

A Chicago user of a four-party line hears his bell tinkle day after day whenever another party uses the line, because the New York experts are controlled by the head of the Bell factory. Chicago could have put in a harmonic system, and its own experts could have learned free that it works better in hundreds of Independent plants than the scheme it has now.

The third condition is another absurd one, and should be changed. The Chicago Telephone Co., should receive 25 per cent of the proceeds of every toll message originating in the confines of Chicago, as well as all leased wire service.

Surely a terminal as large as Chicago is important. Independent companies allow 25% and everyone is satisfied. The Bell long distance game works a great hardship upon its licensee companies.

In the 1909 report, the Bell shows that maintenance, operation and reconstruction cost $27.60 per station.

With property scattered well over our states, a charge of $5 per station year, beginning when plants are new, will be all sufficient for reserve and reconstruction purposes.

This makes the average cost of operating a Bell telephone $22.60 without reserves.

We know the number of telephones in Chicago, and we can reasonably be sure that their operating costs do not exceed the figures laid down by the great Bell company for the whole country.

If they did, the word incompetence, stupidity, ignorance and other dire words could easily apply, and another management should be demanded by the city.

A good Independent telephone man in charge of this company, would be ashamed of spending more than $20, but for the sake of argument involving a loss, let us take the general Bell figures of $22.60.

The Chicago Telephone Co. had 263,000 stations at the end of 1909, and we all know that operating conditions are simpler and cheaper than in many other important Bell territories.

In 1905, the company had 143,223 stations.

In 1906, it completed the year with 170,834.

For 1906, the average number of stations was 157,029.

The 1906 gross earnings were $7,909,567 and the average earning per station was $50.

The cost of operating, at the average American Bell figures of $22.60 (let us call it $23), would be $3,611,667.

Reconstruction and reserves at $5 per station, would add $785,145, making a total cost of $4,396,812.

The 1906 statement upon this actual basis should read:

Gross earnings	$7,909,567
Total cost,	4,396,812
Net	$3,512,755

As the capitalization was $14,000,000, the dividends earned were 25%.

At this time, the liabilities were greater and amounted to nearly $2,000,000.

If liabilities were entitled to interest, then the rate would be 17½%.

The Western Electric Co. prides itself upon a payment of 8% dividends upon the capital stock.

The property of the company is worth $60,000,000, which means that it pays 2% instead of 8%, on the investment.

Accordingly, the Chicago Telephone Co. has no right to have anything but capitalization considered.

Its book resources for 1906 were nearly $20,000,000, naturally, to balance the liabilities.

In 1907, the average number of telephones was 186,757. It earned $8,718,951 or $47 per station.

At the Bell rate of cost, one can figure on $22.90 per telephone. A single dime counts in Independent circles because they have no New York properties to bond.

In Independent circles, it is always necessary to reduce the operating cost below the cost of the year preceding.

The cost of operating 186,757 stations would be around $4,295,411 and the reserves at $5 would add $933,785.

The 1907 sheet would look like this:

Gross earnings	$8,718,951
Cost	5,229,191
Net	$3,489,755

The 1907 capitalization was near $17,000,000 or 20%.

The book resources jumped $8,000,000 and amounted to $28,413,438.

If this statement represented the value of the property then the earnings were 13%.

In 1908 the company averaged 216,817 telephones and they earned $40 each.

The cost of operating these telephones at $22.60 was $4,921,746. Reconstruction reserves at $5 would be $1,008,085.

For 1908, the balance sheet would show:

Gross earnings	$8,741,517
Cost	$5,929,830
Net	$2,811,687

As the capitalization jumped to $27,000,000, the earning percentage was nearly 11%.

The resources jumped to $30,680,801 and if the statement is true, it shows an earning of 9% on the entire property.

In 1909, the average number of telephones was 246,655 and each telephone earned $40.

With the average Bell cost of $22.60 per station, and our estimate of $5 for reserves and reconstruction, the 1909 sheet would look as follows:

Gross earnings	$9,907,499
Cost	6,807,678
Net	$3,099,821

During this year, a bond issue of $5,000,000 made its appearance. Why this was issued, I can not say. Possibly the same reason that prompted the Bell to put out $15,000,000 on the Western Electric Co.

No one can fathom the inscrutable minds that direct the affairs of all the Bell companies. The same bunch of directors have charge everywhere. God help the minor stockholder!

Just why they take such active control of Illinois corporations, when they know the law presumably frowns upon such actions, seems queer when you realize what a law-abiding people they *claim* to be.

Even on capitalization of $32,000,000, the company earned nearly 10%.

It certainly does not seem apparent, even, that the Chicago Telephone Co. is losing money. The Bell cheerfully admit their average cost, and the Chicago telephone officials should have pride enough to lower them.

Were the management a truly Independent one, we could have in addition to earning 25% in 1906, 20% in 1907, 11% in 1908 and 10% in 1909, added to the reserve fund.

4½%	of	$7,909,567	= $355,930	— 1906
4½%	"	8,718,951	= 392,353	— 1907
4½%	"	8,741,517	= 393,368	— 1908
4½%	"	9,907,499	= 449,570	— 1909

Or $1,591,221

which, had it not been uselessly paid to the parent Bell company, would make a tidy sum for the cash reserve chest, and on the asset side too, in order to meet all the vague future charges hinted at on account of a subway for Chicago. There are other years besides, too.

The 1909 earnings should be higher. The company does not receive proper credit as a toll terminal.

What good is a toll line, with its leased wires, out in a desert? But put Chicago at one end of it, and any one of the great cities at the other end, then you create a valuable property. Surely, terminal value is tangible.

When patents expired, the Bell company thrust the long distance company upon its licensees to take the place of the reduced royalties.

The reason such a company as the Northwestern Bell earns more than the Central Union and Missouri & Kansas, is that the Northwestern has no deflection of its toll business on A. T. & T. lines.

When Chicago calls Columbus, the A. T. & T. Co. practically gets it all. But the licensees are not allowed to build connecting lines. The parent company needs the cream. Independent companies divide on a mileage basis. Toll lines are kept busy all day, and are heavy earners. Little or no mileage is possible to the unlucky licensee.

It is absurd to say that a measured service call costs over five cents.

Surely, the experts have been hypnotized. Nothing else could prompt them to make such a report. Bell bookkeeping is a mysterious rite. No one has ever fathomed it. Even Moxey found it impossible at Kansas City.

The street railways of Chicago, with the heavy pay-as-you-enter cars, with costly power stations and tracks and coal bills, cheerfully haul people as long as an hour for five cents.

To say that a telephone message can not be delivered over small wires, inside of a few minutes, for less than five cents, is sheer imbecility.

It is time for common sense reasoning.

Let the city hire some operating telephone men to advise them.

The dictionary says, in defining an expert, "See experience. Taught by use, practice or experience. An experienced person."

If such a committee as McVey of Cleveland, Johnston of Columbus and Polk of Kansas City, after due deliberation, reported that the Chicago Telephone Co. were losing $908,533 in one year, I would cheerfully believe it.

The hearing before the Aldermen revealed some curious angles.

The city accountants were also hired by the telephone company.

Mr. Sunny was surprised (?) to know that the city was not aware of this curious but pregnant fact.

Mr. Sunny, in his reply to Alderman Merriam's question about depreciation percentage, said: "I don't know. The company has set aside reserve funds as much as it could spare, after taking care of the dividends."

Well, well! the cat is out of the bag.

Mr. Sunny is also a director in the Western Electric Company. Curiously enough, his policy in this company is diametrically opposite.

In 1907 the Western Electric Company made several millions profit, but it was so worried about the future that it depreciated everything until the profit on $50,000,000 gross sales was about $114,000.

Why does the Chicago Telephone Company insist upon dividends having right-of-way over reserves, and why does the Western Electric Company have the opposite policy, all with the same board of directors?

The Bell left hand certainly does not hang on the same body, and is not directed by the same mind that its right hand is.

The same bunch of men, so bent upon the glory of the parent company and apparently upon the destruction of the licensee minor's hopes, seem to have the ability to swallow camels and yet strain upon gnats.

Anyway, the Chicago Telephone Company, by Mr. Sunny's admission, lives from hand to mouth, and has fat years and lean years.

The Indian gets his quarter of beef on Monday and eats it all by Tuesday. He then starves the rest of the week.

Surely, the Chicago Telephone Company should have been able to save at the rate of $5 per station year from the very start, and it would have reserve money to burn.

If Mr. Sunny would study the Keystone Telephone Company, he could learn that reserve charges come ahead of bond interest.

Any conservative banker would demand this.

But how Bell literature has ridiculed Independent practice! Now comes this pitiful admission from the Bell Moses in the West.

Mr. Sunny said he knew of no company that had specific reserve charges. He tells it cheerfully, too.

Such ignorance as this is not fitting to a director of so many telephone companies.

Can it be that ignorance is the basis of the Bell attack upon Independent telephone properties, which, in spite of vicious fighting, have had $250,000,000 invested?

Can it be that the Bell interests would have Chicago as ignorant of real telephone practice as they are themselves?

Does the parent Bell company have the fool notion that it can prosper when all its licensee companies are losing money?

Does it think that anyone believes for one moment that any of them *are* losing money?

Does it think for a single moment that the people of the United States are so foolish that they believe the present lamb-like appearnce of the Bell wolf is permanent?

The Chicago Telephone Company would rather go to ruin than submit to a real overhauling by men who understand the telephone business.

Let the city call upon some McVeys or Johnstons or Polks, and then it will be advised properly.

Let the people of Chicago waken up to the utter hypocrisy

of natural monopoly claims and call for a proof that regulation will regulate.

If there is any shame in the Boston management, they should put into their catechism for Bell employes "Never admit that reserves come after dividends."

The holders of those $5,000,000 of bonds should awake and demand of the Chicago Telephone Company that they fill the reserve chest, so that their bonds will not depreciate.

If there ever was a Pharisee in modern times, it is a Bell telephone concern.

The Chicago Telephone Company has been caught with the goods, and Chicago should demand strict justice.

MORAL: King David remarked several thousand years ago: "I said in my haste, all men are liars."

And that goes double in 1910 A. D.

Valuation of Telephone Properties*

By W. C. Polk

The question of appraisal, as applied to the physical value of telephone property, is one of rather recent origin. It is one that is going to come up with more frequency in the future than it has in times past. Owing to the results that will be obtained, and the effect and influence which these results are certain to leave upon both the investor and the general public, it is very important that appraisals should be made along some equitable and uniform basis.

Those in charge of affairs do not seem to realize the importance of this question in its relation to the business as a whole, but seem to look upon it as a matter of interest only to the company which may be undergoing the examination. The general belief seems to be that the procedure is so simple that almost anyone who has in any way been identified with the telephone business is capable of making an appraisal, especially of the smaller plants; also that if the parties so engaged are honest in their efforts, they are bound to reach the same results.

Neither of these propositions is true. Certainly anyone can go out and ascertain the amount and general character of material in the plant, apply the cost prices to these materials, and make a reasonable estimate of the labor involved, and arrive at a result. In some instances this may satisfy all requirements; but, as a public service corporation, there is bound to come a time when every telephone company will have to justify its relation to the public, as well as to its investors. In doing so, it will then become suddenly necessary to treat the appraisal along broader lines, and in a different manner than by the simple method just indicated, if the investor's interest is to be properly protected.

The writer has made a large number of appraisals during the past two years, including plants of all sizes from 200 telephones to over 10,000 telephones scattered over a wide territory. The more one does of this sort of work, the more he will realize the different points of view that can be honestly taken which will bring him to a variety of results. Also, he will soon discover the folly of trying to apply unit costs to work of this nature.

The most serious criticisms that I have encountered in my work have been from those working upon a unit or comparative basis; that is, they will take a published report, that has been elaborately and carefully computed in reference to some particular property, and endeavor to apply the units of cost found therein to another property; and especially will they insist that, if the properties have practically the same number of stations, the unit cost per station should be practically the same in all instances. The most effective manner of proving the fallacy of this sort of argument is to give the results obtained from a personal and actual inventory and appraisal of a number of representative exchanges scattered over a wide territory, and grouping them in relation to the number of stations in service.

I have chosen a list of 31 representative exchanges and arranged them in three groups as regards the number of telephones operated.

The first group of 10 plants have more than 250, and less than 600, telephones in service.

The second group of 10 plants have from 600 to 1,200 telephones in service.

The third group of 11 plants have from 1,200 to 2,500 telephones in service.

These 31 plants are located in several different states, and are representative in every way. The figures given in each instance are my own, and were determined by following the same manner of procedure in all cases, so that the results at least show a true relative comparison, regardless of any criticism as to methods, determining factors, or judgment, as might be applied to any particular plant.

In the first group, of small exchanges, the cost per station for a certain one, with 517 stations, is only $44.24; while that for another, with 251 stations, is $146.35. The average for the 10 plants is $82.30.

The average cost per station of $82.30, for the entire 10 plants, applies fairly accurately to the cost of only two plants.

In the second group the cost per station varies from $56.14 to $159.29; while the average cost for the group is $82.66.

In this instance the average cost, $82.66, could not be applied with any accuracy to any of the 10 plants in determining their total cost value.

In the third group the cost per station varies from $40.18 to $151.64, while the average cost for the group is $90.33.

Again, the average cost of $90.33 can be applied with approximate accuracy in only two instances, in arriving at the cost of plant.

These facts should effectually dispose of the fellow who insists upon making valuations from unit costs of a plant of a similar number of stations; and especially of the one who is using a unit which he has obtained from some published statement, without knowing upon what basis that unit was originally determined.

The same list of exchanges shows an interesting variation in the amount of revenue per station.

The figures are not absolutely correct in all cases, as they are intended to show only the revenue from rentals. All other sources of income, such as long distance, local tolls, directory advertising, etc., are supposed to be eliminated. From some of the statements this separation could not be accurately made, yet is sufficiently accurate for all practical purposes.

The revenue per station, it is found, bears no proportional

*Abstract of a paper read at the convention of the Missouri Independent Telephone Association, St. Joseph, Mo., May 5, 1910.

relation to either the number of stations in service or the cost of the property.

One plant has a return of $19.08 upon a cost of $146.35 per station; while another has a return of $18.22 upon a cost of only $44.24 per station.

Two plants have gross revenue practically the same, while the investment in one is almost triple that of the other. The first has depreciated 15 per cent, while the second has depreciated 50 per cent, both receiving the same income, but the smaller plant having depreciated over three times the amount of the larger.

It would seem that here was a lesson in management; but it should be said, in this connection, that the second plant has been in operation twice the number of years.

Now, going to the second group, it is found that the same condition exists, in that the revenue bears no relative proportion to the cost.

One exchange has a return only of $15 upon a cost of $159.29 per station; while another has a return of $20.90 upon a cost of $71.10.

It is interesting to note, in reference to these two exchanges, that although one has a gross investment of $14,000 more than the other, the latter has a gross return of almost three times that of the first. The depreciation upon these two properties has been in the same ratio, and they have been in operation the same length of time.

In the third group the returns per station follow more closely the cost per station than in the preceding groups, yet the same general conditions exist.

Two exchanges of the group have practically the same gross return, yet one has over twice the investment of the other.

One has $7,000 greater gross revenue than another, yet it has $138,000 less investment. Both have been in operation the same length of time.

With larger exchanges the same irregularity as between returns and investment will exist, but, possibly, not as large a ratio.

You are possibly asking, why I am giving all these figures, and what I am trying to get at.

It is this. There seems to be a general belief among the public, especially with public officials, and accepted quite generally by telephone people themselves, that a rate which is fair and equitable in one community, or city, should be fair and equitable in every other community or city of the same number of inhabitants or class, and especially if the same number of telephones are furnished.

Also, that if the taxes are fixed upon an ad valorem basis, the amounts charged to the various companies should be the same where they are covering a territory of equal population, and serving an approximately equal number of subscribers, or pro-rated in proportion to these factors.

Instead of arguing from a theoretical standpoint that the above conclusions would not be fair and just, on account of different methods of construction, physical and geographical considerations, climatic conditions, etc., I wish to demonstrate, as a matter of fact, that these conclusions would not be equitable or just to the various companies by giving you the actual figures of representative companies covering a wide range of territory.

We will now go back to the question of valuation, and consider its relation to capitalization, rates, taxation, or sale: Whether a valuation to determine any of these factors should be made upon the same basis.

Naturally anyone, upon first thought, will say that a property can have but one honest or correct valuation; and especially will a public official take this view. It is a fact there can be but one true valuation, if the same items are to be considered, and each item treated in the same manner, regardless of the purpose in view.

Let us first enumerate some of the items which enter into the work of making an appraisal:

1. Ascertaining quantity and character of material.
2. Applying cost to this material.
3. Labor to install the material.
4. Livery and teaming.
5. Freight.
6. Tools.
7. Board and transportation.
8. Rents and insurance, and taxes.
9. Office supplies, printing and postage.
10. Soliciting.
11. Right of way.
12. Engineering and supervision.
13. Organization and legal.
14. Interest.
15. Initial operating expense previous to beginning of rentals.
16. Franchise.

As to a valuation for the basis of capitalization, or rates, there probably would be unanimous opinion that all of the 16 items should be included, except, possibly, the last, "Franchise," unless it had been sold for a fixed amount and was a matter of record.

As to a basis for ad valorem taxation, it seems only the first four items should be used, and the question of depreciation not considered.

As to a basis for sale, the entire 16 items should be designated, as well as the depreciation fixed, and it remains only a matter between buyer and seller to determine what items shall be given consideration, or what readustments that may be mutually agreed upon between themselves.

We will take each of the 16 individual items for a moment, and see if there can be any question or difference of opinion as to their treatment.

1. Ascertaining quantity and character of material.

This resolves itself into more or less of a clerical proposition, and requires no further attention.

2. Applying cost to material.

This can be approached in a variety of ways, which will materially affect the final result.

Current prices, at the time of appraisal, can be adopted, or an average over a term of years immediately preceding, or an average over entire life of plant, or estimating for the original plant and taking actual cost figures from the books of the company for that purchased during the years of operation, etc.

It is evident some definite method should be agreed upon for fixing this item, yet, at present, it is a source of frequent argument.

3. Labor.

At present there seems to be no guide except individual opinion in each case, but it would seem possible that there could be some standard adopted in reference to a major portion of the larger items, and these to be generally accepted, thereby reaching more uniform results.

4. Livery and teaming.

At present this is a matter of personal opinion, but could be made uniform by fixing it at a definite per cent of the amounts of Items 1, 2 and 3, exclusive of real estate and equipment.

5. Freight.

This item is comparatively small, as it is largely consumed in Item 2.

6. Tools.

This is a personal opinion item, but could be made a fixed per cent of Items 1, 2 and 3.

7. Board and transportation. This is a personal opinion item, governed largely by the conditions attending the original construction, but there is no reason why it could not be made a fixed per cent item.

8. Rents, Insurance, and Taxes.

These are arbitrary amounts that would accrue upon construction in the replacement of the property, and do not refer to the items in their relation to the operating company. They could be made a fixed per cent item.

9. Office Supplies, Printing and Postage.

The same would apply to this item as applies to No. 8.

10. Soliciting.

At present, this is entirely a matter of personal opinion, but could be made a fixed amount in proportion to the number of telephones in service.

11. Right of Way.

This is a personal opinion item. It could be established on a fixed per cent basis.

12. Engineering and Supervision.

Now an entirely personal opinion matter, but should be placed upon a fixed per cent basis.

13. Organization and Legal.

Same would apply to this as to No. 12.

14. Interest.

This is a conditional item, depending upon size of plant, and circumstances under which it was constructed.

15. Initial Operating Expense.

This is a conditional item, depending upon circumstances of the original construction. Oftentimes the company operates for a considerable period before it begins the collection of rentals.

16. Franchise.

This is a conditional item.

It is apparent that as long as this question of valuation remains a personal matter there can be honest differences of opinion as to what individual items should enter into the appraisal. Also, after the items which are to be considered have been agreed upon, there yet remain methods of considering individual items.

This brief outline of some of the questions that arise in connection with appraisals may indicate that the possibility of reaching uniform results is not so simple a proposition as some believe. At present it is largely a matter of personal opinion. This is not so serious as long as the questions involved are confined to, and are for those engaged in the business; but, when they become questions in which the public are interested, through their public service commissions, taxation boards, municipal officers, etc., it becomes another matter.

As, under present methods, a number of the items which enter into the valuation are subject to the personal point of view taken by the appraiser, no uniform results are reached.

What relief can those engaged in the business expect when appearing before public bodies with no uniform line of argument?

Take the question of taxes. Referring to the list of properties mentioned, it is self-evident that they could not be distributed equitably upon an ad valorem basis, yet we have telephone managers who will strenuously argue in favor of ad valorem as against specific taxation.

The large number of individual items going to make up an appraisal could be made specific, by putting them on a per cent basis, as heretofore stated; and others,—such as costs—having an agreed code of application. It would seem that it should be a subject for the State Associations in conjunction with the National body to work out some uniform code in reference to valuations, so that no matter where the question arises,—whether in Missouri or New York—those interested would go before these public representatives with some true relative and uniform line or argument.

You cannot expect to get fair and equitable consideration from the public, as regards your investment, until you can agree among yourselves as to what is fair and equitable, and present it to their representatives in a plain, open, and uniform manner.

Distributing Houses Used in Budapest.

In Budapest, Hungary, both aerial and underground distribution is used in the telephone system. Underground cables running from the central office to groups of buildings or houses and then aerial wires are used. The general arrangement is such that the aerial wires do not cross the wide streets and they also do not run a great distance.

The junction points of the cable with aerial conductors are

A Distributing House in Budapest.

usually made in public buildings. Distributing boxes are placed in the lofts of the buildings, as space is always available there. Where public buildings are not located, the junction is made in a small iron house of the type shown in the illustration.

Col. Powers Elected Treasurer of Louisville Home.

An indication of the increasing volume of business done by the Louisville Home Telephone Company is given in the announcement of the election of Col. Joshua D. Powers, of that city, as treasurer of the company, succeeding George M. Boone. Mr. Boone has been secretary-treasurer, but his duties as secretary have become so heavy that it was decided to separate the two offices. Mr. Boone will of course remain as secretary.

Practical Letters from the Readers

Improvements on a Run-Down Plant.

For the benefit of others, and not to cast discredit on any one, a few experiences will be given by the writer, who was fortunate or unfortunate enough to take charge of the most neglected plant that it has been his privilege to see for some time.

To begin with, the rural lines are of the divided circuit type, with all bells biased, ringing four parties on each side of the line. On taking charge of the plant the first thing to be done, of course, was to get the central office equipment into good operation. The switchboard is an old Western Electric make, and would give fairly good service if properly cared for.

Quite a bit of trouble was experienced at first with induction or cross-talk, and breaking of wires in the keyboard cable. This was caused by the cables being ripped open to lessen induction, and the vibration caused the loose wires to break off the keys. Properly twisting the pairs and lacing the cables cured this trouble.

Short-Circuited Pole Changer.

The power was furnished by a badly burned out pole-changer of the Warner type, and 150 dry cells supplying the current. The vibrator was run by an old dry battery, the pulsations being so slow that one could easily count them. Very poor ringing was had with the 150 cells, so a search was made to find the trouble. First of all, the condenser in the pole-changer circuit was short-circuited, thus drawing up and locking the relay armature, causing heavy sparking at the vibrator contacts. The cause of the pole-changer being so badly burned was that the 150 cells were too much battery, and every time there was a "dead short" or heat coil blown it caused a dead ground. The contacts were sure to suffer severely, and the relay coil became over-heated. To remedy this a new machine was purchased, and 100 ohm resistance lamps were inserted in the ringing lead of each position.

Bad Grounds.

Still this did not cure all the trouble, as continuous complaints came in that the bells rang weak, or not at all. Further investigation among the subscribers disclosed the fact that all sorts of rusty rods and wires were used as ground rods. The bell armatures were adjusted from tight against the magnets to a quarter inch away. New rods and adjusting the bell armatures cleared this trouble.

High-Resistance Connections.

Also numerous complaints came in "Can't get central," or "Can't hear central." On examining the protective apparatus the heat coils were found to be very badly corroded. About one-half the cross-connecting wires had been cut at some time, and simply twisted together again without solder, and as we are in the gas belt numerous very high-resistance joints were found. Some measured several thousand ohms. Of course, the remedy was a thorough clearing and soldering of all joints and connections.

The operators reported that an excessive amount of current came in on some of the lines when an electrical storm passed over. An investigation was made, and it was found that not a single line had protection at the terminal, and a number actually entered the switchboard without protection, including one toll line. One terminal pole did not even have a cable box. The rubber covered cable was simply fanned out over the cross-arms and run to the different circuits. Of course, the remedy was effected with a new terminal house and new bridle wires on the pole.

An attempt had been made about three years ago to solder up the system. The work was done in a fair manner, but acid was used instead of a non-corrosive flux, and the result was that the iron and copper connections rusted off and had to be spliced and resoldered, but without acid.

The former secretary reported that certain lines never did work well, and of course particular attention was paid to these lines. The wires were found to have grounds and low resistance across the terminals. A thorough examination showed that at places the line wires were grounded in trees as much as two inches, and ringing coils were found in the subscribers' sets varying from 500 to 1,250 ohms in resistance.

However, by dint of hard labor the exchange is in fair shape now.

Hoping none of our neighbors will let their exchanges get into such shape, I am, Wm. Hoover,

Sweetzer, Ind. Supt. Sweetzer Rural Telo. Co.

The Value of Treating Poles with Preservative in the South.

A subscriber of TELEPHONY, living in North Carolina, is a thorough believer in the use of preservative for poles, as a result of his experience with it in the extensive system of which he is general manager.

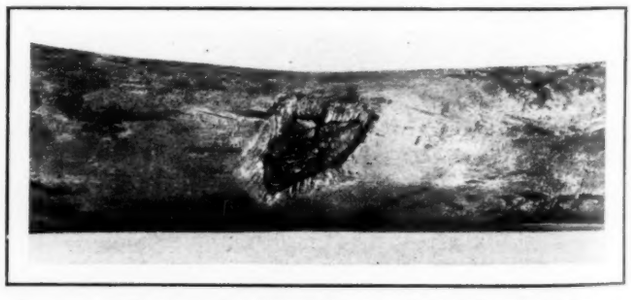
He recently stated that he believed the life of poles was increased from 50 to 70 per cent when the preservative was properly applied. In the South juniper and cypress poles are largely used, and they should always be shaved before preservative is applied, in order to secure penetration. Upon removing the bark, a thin liquid film, which soon hardens into a coating impervious to moisture, is left on the poles. This coating the preservative cannot penetrate effectively. When the poles are shaved the pores are opened and the preservative penetrates to a depth of from ¼ to ⅜ of an inch.

In regard to the life of treated and untreated poles it was stated that in 1899 a 55-mile line had 30 successive miles of poles treated with a well known high grade preservative, and the balance of 25 miles was built with untreated poles. In 1906 it was necessary to rebuild the 25 mile line and only about 5 per cent of the old poles could be used. The following year, owing to a change in the highway line, the 30 mile line had to be moved. Of the treated poles on this line fully 90 per cent were in good condition to reset, thus showing that the preservative treatment was effective.

Rats as a Source of Cable Trouble.

Electrolysis, and holes from a laborer's pick are not the only kinds of trouble which may develop in underground cables, as was shown by a recent case where rats had gnawed away the lead sheath for about a square inch.

This was a difficult case to locate, as the conduit was



Section of Underground Cable Showing Hole Gnawed by Rats.

fairly dry and the trouble showed only one volt cross, but with a reflecting galvanometer it was possible to make a location which showed the trouble between two manholes. When a new section was cut over and the old piece pulled out, the rat hole was found, as shown in the photograph

In the downtown district, the manholes and conduits are

infested with a great number of sewer rats, which make a splicer's life miserable while working there. All of the spare ducts have been plugged up and cement placed around the cables, as a protection against gas and water, but in some cases the rats have gnawed through this for the purpose of using the ducts as an underground highway to the basements of buildings.

Relief might be found by placing a rat trap in each manhole, although one case of trouble would hardly seem to justify the expense.

Louisville, Ky.

Vincent E. Furnas, Engineer,
Louisville Home Tel. Co.

The Rural Telephone Guerilla.

Cut-rate service is an evil which is going to be fought with vigor in the telephone business during the next few years. One of the most interesting letters which has been received by TELEPHONY for some time is one in which the president of a company with a capital of $4,000, comments on this topic. He says:

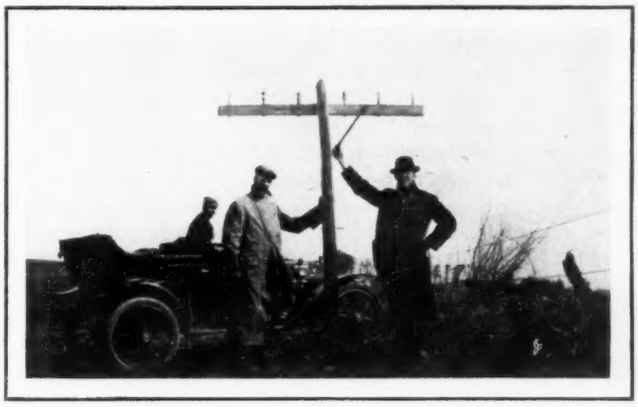
"I have been greatly edified and instructed by reading the editorials and articles from the various correspondents of TELEPHONY I have learned much that is useful about the construction and maintenance of lines, and have had valuable hints as to the conduct of business; in fact I regard TELEPHONY as a regular encyclopedia of useful information to the telephone manager. By it we learn how to organize, finance, build, equip, or anything necessary to know in that line. But there is one trouble applicable to country systems for which I have never seen any remedy—the telephone guerillas. Josh Billings said that he 'could break a hornets neck, hide from the sheriff, or outrun a black snake, but from the interviewer there was no escape, for like the cussed musketer he would hover around in the dark and if he did not bite he would sing and that was wuss,' and so it is with the telephone guerilla. A set of men organize to build up a telephone system in a community on an independent basis, and to give service at a price that any reasonable man should be willing to pay. They get their lines built in good availing order, and their exchanges established so as to give a good reasonable service. Then comes the guerilla. A lot of men who have never studied the telephone question from the standpoint of cost and legitimate returns thereon will get together and conclude that every telephone company is a robber, and looking for a monoply, and these fellows resolve to build lines for free service. So off goes an order for some fence wire and a few hundred cheap insulators, and they at once proceed to string lines through the country, tying to trees, fence posts, or any old thing that may happen to be in the way. When the lines are strung the owners proceed to load them down, put in call bells at various places so as to signal from line to line and thus loudly proclaim a FREE telephone service. This word FREE is a very catchy phrase, and many thousand 'suckers' have been caught with this alluring bait, only to discover that it is a dead sea fruit.

"When those who are honestly trying to build up the service on correct Independent principles—a reasonable cost to the subscriber and fair return to the investor—offer a protest, a howl goes up that they are no better than the Bell and are trying to oppress the people, because they refuse to connect with the guerilla lines on their switchboards, and give them 'free exchange.' The result is that the guerillas can't give any service, and the better companies don't feel justified in extending their lines until the storm blows over. Mail order houses are sending out thousands of catalogs telling 'how to build farmer lines as easily as putting up a fence. and how to get cheap telephones,' thus adding to the confusion among the telephone lines in the country as well as impeding the work of the bona fide Independent manufacturers of telephone and telephone supplies.

"What is the answer?"

A Theory of Rural Line Evolution.

A friend in the Middle West sends in the accompanying photograph with the statement that it is an example of



An Example of Storm Guying in Nebraska.

storm guying as occasionally practiced in his state. If this theory is correct the photograph is self explanatory.

Another possible view is that in this progressive section even the rural line owners are beginning to think seriously of underground construction, and are getting their plants into this class by easy steps, the line in question having already made a good start in this direction.

One of the advantages of this type of construction in its present form is that it is unnecessary to leave the automobile to shake out a cross, an advantage which particularly appeals to rural line owners who are also farmers, and so in a position to use automobiles as an everyday matter in their telephone work.

The Usual Promises, But No Results.

According to reports from Rock Rapids, Iowa, the telephone service in that place is very poor and the subscribers are up in arms in an effort to obtain better service. The city council took cognizance of the situation and an order was issued notifying the Western Electric Telephone Company (Bell) to remedy matters immediately.

Quoting from a report received in TELEPHONY's offices: "The Rock Rapids exchange was owned by private parties. The system was generally run down and a demand was made upon them to make improvements so better service could be had. The Western Electric bought the system. There was rejoicing with the public in Rock Rapids, thinking a 'big concern' like the Western Electric would do wonders, being strong financially, and would give them anything they asked for. But they soon found out what the 'Bell' stands for in the telephone business."

The Western Electric company operates systems in Sheldon, Iowa, Spencer, Mason City and other places. This spring it bought out the Rock Rapids system through promises to do extensive repairing and to give greatly improved service. Up to the present time no improvements have been made and, it is reported, no indications of improvements to be made are noticeable.

Personal.

Will Long, lineman, is urgently requested to return to Colby, Kansas. His child is sick. Any one knowing his whereabouts will confer a favor by notifying Mrs. W. Long, Colby, Kansas.

A rosperous Company in the Ontario Mining District

A company which deserves favorable comment on several grounds is the Temiskaming Telephone Company, Ltd., of New Liskeard, Ontario. Its fifth annual report, dated February 7, sheds an interesting light on the operations of the organization. The commendable completeness of the report, for one thing, inspires confidence in the financial plan and management. Although the company has apparently no depreciation reserve, after being in operation five years, it is taking account of its depreciation, charging it off as a loss of 5 per cent. While it would have been better accounting to establish a reserve, the present method shows intelligent conservation and regard for the investment.

Although no dividends are paid, according to the report the company has an ample surplus, and should soon be giving good returns to shareholders.

Following is an extended abstract of the report:

"The auditor's report and financial statement for 1909 was as follows:

PROFIT AND LOSS STATEMENT.

Profit.

Telephone Rentals	$17,106.22	
Long Distance Messages	8,549.62	
		$25,655.84

Loss.

Operation	$3,640.28	
Maintenance	5,130.35	
Expense, Office Salaries, Postage, etc.	2,047.53	
Interest and Discount	1,299.00	
Directors' Fees	264.00	
Taxes	688.11	
Insurance	248.15	
Depreciation of Plant 5%	3,536.05	
Printing and Stationery	275.90	
Heating and Lighting	359.60	
		$17,488.97
Net Gain for Year		$8,166.87

STATEMENT OF ASSETS AND LIABILITIES.

Assets.

Plant and Equipment	$67,184.60	
Real Estate	950.00	
Building, New Liskeard	3,334.84	
Office Fixtures and Furniture	469.45	
Building, Cobalt	766.12	
Accounts Receivable (Rentals)	2,933.70	
Accounts Receivable (Messages)	1,773.48	
Accounts Receivable (Sundries)	534.97	
Unearned Insurance Premiums	153.86	
Unearned Interest on Loans	68.00	
Cash on Hand	536.93	
		$78,705.95

Liabilities.

Bills Payable	$13,500.00	
Accounts Payable	3,295.24	
Bonds	5,000.00	
Accrued Interest on Bonds	100.00	
Wages and Salaries Due	589.05	
Unearned Telephone Rentals	5,131.86	
Directors' Fees Due	132.00	
Subscribed Stock	37,417.00	
		$65,165.15
Net Worth		$13,540.80

"The chairman read the directors' report, which was as follows:

"At the beginning of the year a considerable amount of toll business was offered from Elk Lake, the Montreal River mining district and Gow Ganda, coming on our system at Charlton. To facilitate the handling of this business the metallic toll line from New Liskeard was continued into Englehart and a switchboard installed at the latter point. The toll line running to Heaslip, Towstown and Larder Lake and the line to Brentha, Sunday Creek and Charlton was each brought separately into this switchboard, which was also made to take care of the local telephones at Englehart. This greatly relieved the toll line north from New Liskeard and has resulted in a considerable increase in our toll receipts. The toll line into Larder Lake had for some time been abandoned. Your directors did not deem it wise to spend further money on this line, but entered into arrangements with Mr. John Humphrey by which he puts this line in order and leased same at a figure giving the company a fair return on the money spent in its construction.

"The business at Cobalt and Haileybury having outgrown the capacity of the switchboards at these points a new 400 drop switchboard was installed at Cobalt and the Cobalt 200 drop switchboard was installed at Haileybury. Indications point to the necessity almost at once of again replacing the Haileybury switchboard with one of greater capacity.

"At the early part of the season the toll line between Haileybury and New Liskeard was rebuilt, wires transposed and the whole put in standard shape. The toll line between Haileybury and Cobalt was later in the season similarly dealt with and the company now has three metallic lines working between Cobalt and New Liskeard.

"The company sustained a serious loss on July 2, by a fire which destroyed a lead serving an important part of Cobalt town and the majority of the Cobalt mines, and also carrying the toll line to Haileybury. Our loss lay not so much in the value of the property destroyed as in the serious inconvenience and annoyance caused to our patrons and a falling off in revenue until the lead was rebuilt.

"Your directors decided in rebuilding to place all mines on metallic lines and to introduce the can-top cable system with lightning arresters throughout the town of Cobalt, putting in a cable capacity of 1,000 telephones. To this end the whole town of Cobalt has been re-poled and all material for the new system purchased. A cable has been stretched from the central office across Cobalt Lake to a point near the Nipissing Mines Company's main plant and a new lead built to Kerr Lake. The business section of Haileybury being very compact, your directors have deemed it wise to install the can-top cable system there and poles have all been placed, cable stretched and the whole work, including rearrangement of equipment at central, will be completed this month.

"The company having received orders for a number of telephones at Port Cobalt are now installing a switchboard there and connections are being daily made. Several business men of Latchford have recently been urging the company to again operate a local system there and a number of subscribers have been promised.

"Our officials are now taking up matters with the corporation of Latchford and if satisfactory arrangements can be made it would appear desirable to rebuild the toll line between Cobalt and Latchford, build a new line from Gillies Depot to Cobalt and install a switchboard at Latchford.

"The policy of your directors has been to undertake no extensions until the territory at present occupied should be thoroughly developed and our system brought to the highest standard. The mining companies operating in South Lorrain have, however, made a proposal to the company which your directors have felt bound to accept. These companies have subscribed $500, the estimated cost of toll line from Cobalt to South Lorrain, and this company undertakes to build the toll line, install a switchboard and local exchange at South Lorain, and pay the mining companies twenty per cent of the toll line receipts. The company have the option at any time of return-

ing the amount subscribed and retaining all earnings. Work on this line is now under way. Besides the work mentioned all the toll lines of the company have been overhauled and repaired.

"The greater part of this work has been done under the superintendence of Mr. W. H. Lytle, who early in the year had charge of the installation of the system of the Canadian Independent Telephone Company at Brantford.

"Your directors feel that the company is to be congratulated on the efficiency of the accounting end of the business. In the early years of the enterprise accounts due the company fell considerably in arrears. Lately the company have succeeded in converting their business into a prompt cash one. Many of the old accounts have been collected and judgments secured against other delinquents, and it is probable that not more than $300 will have to be written off since the beginning of the company's business for bad debts.

"In the Province of Ontario the company's system extends through thirteen organized municipalities. Much valuable time has been lost in the past year by our officers meeting the different Courts of Revision to secure proper assessments. By correspondence early in the year with the different municipalities, matters were adjusted with all municipalities but two. In these cases appeals were taken to the district judge, who gave a ruling exempting from taxation in townships all party lines and branch lines under twenty-five miles in length.

"In conclusion your directors would say that the prospects of the company have never been brighter. The revenue for the twelve months ending December 31, 1909, has exceeded that of 1908 by $5,950.54, and the receipts for the month of December were much the largest in the history of the company, amounting to $2,951.11. By extending and improving our system in the different towns there is no doubt that the company can add considerably to the number of patrons, but we are of opinion that with the improvements already made on our toll lines, the additions now under construciton and some slight improvements to the lines running north from New Liskeard to avoid electrical disturbances, together with a better system of dispatching toll messages from the larger exchanges that in proportion a much larger revenue may be expected from this source in the forthcoming year.

"The following is a statement of the plan, toll lines and equipment of the company:

"Englehart: 50 drop switchboard; 8 local telephones; toll line (single wire) to Brentha, Sunday Creek and Charlton, 12½ miles; toll line (single wire) to Heaslip, Tomstown, Wendigo and Larder Lake, 30½ miles.

"New Liskeard: 400 drop switchboard; 220 local telephones; 6 pay stations; central office owned by company; toll line (metallic) to Hillview Milberta, Earlton an Englehart, 31 miles; toll line (single wire) to Uno Park, Highand and Thornloe, 19½ miles; toll line (single wire) to Hanbury, Harley, Pearsons' Landing, Judge, North Temiskaming, Guigues, Lorrainville and Ville Marie, 42 miles.

"Ville Marie: 50 drop switchboard; 42 local telephones.

"Haileybury: 200 drop switchboard; 192 local telephones; 5 pay stations; three metallic toll lines to New Liskeard, 5 miles; three metallic toll lines to Cobalt, 6 miles.

"Port Cobalt: 50 drop switchboard; 20 local telephones (under contract); toll line (metallic) to Argentite and Cobalt, 3 miles.

"Cobalt: 400 drop switchboard; 304 local telephones; 4 pay stations; central office owned by company; toll line (metallic) (under construction) to South Lorrain; toll line (single wire) (being converted to metallic) to Gillies Depot and Latchford, 9 miles.

"Latchford: 50 drop switchboard (in stock); 15 local telephones (under contract).

"South Lorrain: 50 drop switchboard (in stock); 10 local telephones (under contract).

"Total: 12 switchboards (in use and in stock); 766 telephones installed locally; 45 telephones under contract and in stock; 15 local pay stations; 21 pay stations (agents); 180½ miles toll lines."

At a directors' meeting held after the shareholders' meeting, Mr. T. McCamus was appointed president; Mr. A. N. Morgan, vice-president, and Mr. P. R. Craven, secretary-treasurer, for the ensuing year.

Albany Home Shows Good Surplus Above Dividend.

The annual meeting of the stockholders of the Albany Home Telephone Company was held at the office of the company, Monday afternoon, May 9, at Albany, N. Y.

The report of the company for the year shows the following:

Earnings.		
From rentals	$81,354.06	
From tolls and other sources	3,703.98	
Gross earnings		$85,058.04
Disbursements.		
Operating and maintenance	$40,693.84	
Fixed charges	21,423.90	
Total expenditures		62,117.74
Net earnings		$22,940.30
Less 4 per cent dividend on capital stock		11,932.00
Net earnings carried to surplus account		$11,008.30

The following directors were elected for the ensuing year:

James Moore, Henry Dumary, Chas. V. Mann, I. R. Coughtry, H. Hendrickson, E. M. Woodard, Richard Stephens, Chas. M. Page, Albany, N. Y.; F. E. Cooley, Rensselaer, N. Y.; I. H. Griswold, T. M. Brush, F. H. Sudro, W. E. Brooks, J. C. Hill, Elyria, O.

At the meeting of the directors held later the following officers were elected:

Howard Hendrickson, president; I. H. Griswold, vice-president; George H. Rymers, secretary; Ernest Schneider, treasurer; P. J. Fitzgerald, manager.

An Encouraging Report from Southeast Kansas.

The Osage Valley Mutual Telephone Company, of Mapleton, Kan., reports that it is enjoying a steady growth of its system and is well pleased with the prospects for the future. This company operates exchanges in Mapleton, Harding and Devon, and has on its system 25 business subscribers; 100 residence subscribers and 250 rural subscribers. The rate charged by the company for each class of service is $1.00 per month. Since the first of the year 25 subscribers were added to its list.

The company's system is in good condition, being but six years old. Switchboards of the highest grade, made by well known Independent manufacturers, are in use. Poles are all cedar.

A. J. Ball, president of the local bank, is president of the company; D. M. Campbell, farmer and stockman, vice-president; Wm. Ball, cashier in the bank, treasurer, and L. M. Byington, secretary and general manager. The company is capitalized at $25,000 and the stock is all owned by 100 local holders. There are no bonds.

Indiana Telephone Property Valued at $11,187,013.

The Indiana State Board of Tax Commissioners has completed the assessment of telephone property within the state. Four hundred and eighteen companies were listed by the board, providing an increase of $1,084,729 on a total valuation of $11,187,013. A table accompanying the report shows the increases and decreases in the companies having individual valuations of $100,000 or over. The board placed the following companies in that class: Central Union, $2,829,308; Chicago Telephone Company, $254,426; Citizens Independent Telephone Company, of Terre Haute, $257,783; Cumberland Telephone &

Telegraph Company, $587,670; Delaware & Madison Counties Telephone Company, $134,226; the Home Telephone & Telegraph Company, of Ft. Wayne, $312,400; the Indianapolis Telephone Company, $753,519; the Lafayette Telephone Company, $106,600; the New Long Distance Telephone Company, $368,325; the Richmond Home Telephone Company, $121,500; the South Bend Home Telephone Company, $307,046; the United Telephone Company, $229,680.

In a few days the board will issue to each company in the state the amount at which the company's property is valued, the rate of assessment per mile of wire, etc., and increases and decreases as compared with the assessment for the previous year. At the opening of the second session of the board any telephone company dissatisfied with the valuation and assessment can have a hearing for the purpose of convincing the board that the valuation and assessment is too high.

Independents in the Lead at Lincoln, Nebraska.

The March reports of telephone companies to the city of Lincoln, Nebraska, for purposes of taxation, show the substantial lead which the Independent Lincoln Telephone & Telegraph Co. has over its Bell rival, the Nebraska Telephone Co. Following are the figures:

	Exchange Income Net.	Net Toll Income.	Total For April.	Tax Paid.
Lincoln T. & T. Co.	$13,203.55	$2,010.60	$15,204.15	$304.08
Nebraska T. Co.	7,766.73	2,733.80	10,500.53	201.00
Excess, Independent Co.			$4,703.63	$103.08

The Bell income was 68.7 per cent that of the Independent company for March.

Although the Independent toll income is lower than that of the Bell exchange, it is advancing rapidly. The Independent company has the finest grade of equipment, a well organized operating department, and in connection with other companies of the Nebraska Independent telephone system is giving an exceptionally high grade of service which is bound to produce steadily increasing returns.

Cumberland Profits Show Opportunities for Competition.

Another hand-out to stockholders of the Cumberland Telephone Company is rumored. The March report of the company has just been issued and it shows that the profits of this poor, hard-run company, which cannot stand competition, are piling up a little too fast, notwithstanding dividends have been run up from 4 per cent to 8 per cent since 1907.

The net increase in revenue in March over March, last year, was 15,037.86. At this rate the company can this year easily pay its big 8 per cent dividend and put considerably over $200,000 into its surplus fund, a fund that already amounts to $3,969,167.88.

The following is the March report, just issued:

Operations for the Month of March, 1910.

Earnings from exchange service	$401,694.70	
Earnings from toll service	160,646.85	
Miscellaneous revenue	5,994.54	
Total gross revenue		$568,336.09
Expenses—		
Operation	$171,183.83	
Maintenance	149,545.42	
Interest and taxes	47,523.54	
Total gross expense		$368,582.79
Balance revenue		$200,083.30
Increase in gross revenue over corresponding month last year		39,598.93
Increase in gross expense over corresponding month last year		24,561.07
Increase in net revenue over corresponding month last year		15,037.86
Per cent of gross telephone expense to gross telephone revenue		62.81
Per cent of net revenue to capital stock		12.20

The Cumberland has repeatedly tried to scare other companies out of its territory, so that it can keep up rates, and its partial success is apparent, while it incidentally shows what a good opportunity this territory offers.

Texas Telephone Men Urged to Get in Touch with Association.

The following notice is issued by the Texas Independent Telephone Association to all Independent telephone men of the state:

"In order that a more complete mailing list of Texas Independent telephone companies may be compiled, for use by the Texas Independent Telephone Association, you are hereby urged and requested to mail, at once, to the secretary the correct name and address of your company or companies, also name of manager, superintendent or official in charge.

"It is of vital importance to all that this information is secured immediately and you are again requested to *do it now*. Thanking you in advance for favor and soliciting your assistance and co-operation for the good of Texas Independent telephony, I am, "Yours very truly,

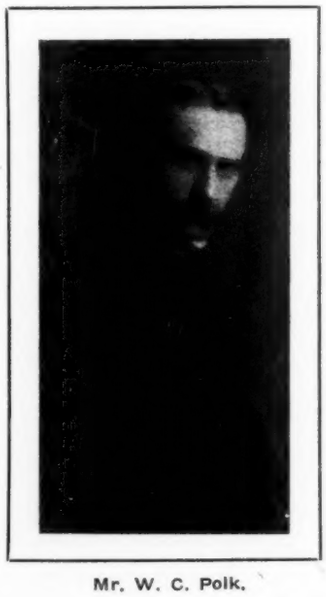
"Leon Spencer, Secy.,
"Box 492, Gainesville, Tex."

W. C. Polk with Kansas City Home Company.

Mr. W. C. Polk has recently accepted a position carrying the title of General Superintendent and Engineer of the Kansas City Home Telephone Company. He has discontinued the office which he has long occupied in the capacity of telephone construction engineer, at Toledo, Ohio.

Mr. Polk has been the engineer in charge of building a number of the most important Independent telephone systems in the country, and built up for himself a high reputation in this work. While he was in Toledo as consulting engineer he was retained in an advisory capacity by several important properties, and his influence was felt in the direction not only of better work, but of sound business methods. He has made many appraisals of telephone property, and is known as a keen, careful and reliable investigator, whose reports fully covered the work in hand.

He was the engineer in charge of the construction of the Kansas City Home Plant, with the fundamental plans of which he is, consequently, thoroughly familiar. The extraordinarily



Mr. W. C. Polk.

capable management of Mr. O. C. Snider has been responsible for a very rapid growth of the Kansas City Home property, which now occupies a strong position, not only from the view point of the popularity of its service, but as holding the highest rank in the telephone investment field.

Legal Questions and Decisions

Conducted by A. H. McMillan

Injury by House Mover to Conduits.

A telephone company, by virtue of a city franchise, placed conduits to carry its wires under the street between the curb and the sidewalk. A house mover, under permit of the city to move a house, consulted the company about lifting and cutting overhead wires, and telephone men went over the route and contracted to remove all overhead wires which were in the way. The house mover paid the company $75, for which it gave him a receipt to cover expenses of "changing the wires or other property of the company." The mover damaged the conduits by driving a stake into the ground. The telephone company brought suit against the house mover for the damages thus sustained. The supreme court of New York, after the defendant had appealed, held that the act of the house mover was an unlawful trespass for which the mover was liable, irrespective of negligence, since the right of occupation of the telephone company was a prior, permanent and semi-public right, while the right of the mover was a temporary and purely private right. The receipt and oral negotiations being confined to overhead wires, was held not to affect the liability of the mover for damaging the conduits. It was further held that the telephone company was not under any duty to inform the house mover of the location of its underground wires, though it had knowledge of the moving, since modern streets are so underlaid with pipe and conduits of various kinds necessary to the welfare of the citizens, that it was the duty of the mover to inform himself, as he could have done by consulting maps in the city engineer's office, of the exact location of all underground conduits of the company. The mover tried to escape liability by showing that the lineman sent out by the company saw that he was driving stakes and did not notify him of the existence of underground conduits. This contention was held to be no valid defense because notice of the lineman was not notice by the company. Frontier Tel. Co. vs. Hepp. 121 N. Y. Suppl., 460.

Strike Injunction.

The National Telephone Company of West Virginia brought suit against Harry C. Corcoran and others who were electrical workmen and members of a labor union, known as "Local Union No. 142, International Brotherhood of Electrical Workers," to restrain the latter and their associates from cutting, breaking, burning or injuring any of the poles, wires, cables, telephones and apparatus of that company. The bill of complaint alleged that the defendants had formed an unlawful conspiracy to construct and control all interstate communication by telephone between Wheeling, W. Va., and other points in the United States. The injunction prayed for was issued and made permanent. Later, the bill of complaint was amended and new parties made defendants, an injunction being sought against them on the theory that they had become parties to the conspiracy. These new parties answered, admitting their sympathy with the defendants and their desire to aid them, but denying any connection with the alleged conspiracy. There was no proof of their connection with it in an unlawful way, and the United States Court of Appeals held that the injunction as to these new parties should be dissolved. Corcoran vs. National Tel. Co. of W. Va., 175 Fed., 761.

Maintenance of Anchor in Street.

The New Long Distance Telephone Company of Cicero, Ind., was operating its lines in the streets under a franchise granted by the town board. Acting under the order of the town marshal and in accordance with the instructions of the trustee of the town, the company attempted to locate and establish a stub pole near the property of Julia White. The owner of the property refused to permit a stub pole and anchor to be set there, so the company sued for an injunction to prevent her interference. In its suit the company alleged that it was necessary for it to maintain the stub pole and anchorage to prevent a large pole from falling upon houses and property. The defendant denied that the company had a valid franchise and alleged that great damage was done her by the location of the pole and anchorage without her consent. The decree of the circuit court for Hamilton County restrained the defendant from interfering with the pole. On appeal to the Appellate Court of the state, it was held that the injunction should also have included the anchor. The right of the company to operate in the town and to locate its pole and anchor at the point in question, was thus sustained. New Long Distance Tel. Co. vs. White, 90 N. E., 1038.

No Recovery For Death.

In an action brought by the administrator of a telephone lineman against an electric light company, it appeared that the gang with which the lineman was working assembled for the purpose of taking down an old cable of the telephone company. This cable was in the vicinity of other wires, the highest of which was the heavily charged wire of the electric company. As the lineman was about to ascend the pole, the foreman told him of the unusual danger and that he must look out for the 2,300 volt wires under them, and the 13,000 volt wires above them and not to touch either; that he would be killed if he did. At the time of the accident, the lineman was bending over, tying a "traveling block" to the crossarm of the telephone company's pole. While thus engaged, a fellow workman, who was on another pole near him, noticed that he was dangerously near the 13,000 volt wire and called out to him, saying: "Look out there, if you straighten up and touch them wires, you will be a goner." At this the lineman looked at the witness and smiled, turned his head around and looked up at the wires to which he referred. A moment after, the lineman rose up, came in contact with the heavily charged wire, and immediately fell lifeless to the ground. The evidence showed that the wires were far enough apart for the work to have been done safely, by the exercise of reasonable care. The contributory negligence of the deceased lineman was held to bar a recovery. Templeton's Admr. vs. Linchburg Traction & Light Co., 67 S. E., 351.

Objects to Discontinuance of Suit by His Partner.

A motion to have the circuit court strike from its files a paper purporting to withdraw the petition for mandamus made by Chester H. Bliss and Edward M. Vosburg against the Michigan State Telephone Company, at Flint, Mich., has been made by Chester H. Bliss, one of the relators The instrument which Bliss asks to be stricken from the court records purports to be signed by Edward N. Vosburg, one of the relators, and was filed in the clerk's office April 1. It is charged by Bliss that the signature is not endorsed by witnesses, nor does the instrument contain the name of any attorney.

A petition for a writ of mandamus was filed several weeks ago by Bliss & Vosburg, proprietors of the Bryant House, against the Michigan State Telephone Company, asking that the company be compelled to connect its trunk line with the switchboard in the hotel, to which is connected the telephones of the Valley system.

Queries from the Field

Carbon Trouble—Cord Testing Circuit.

We have been experiencing some trouble from moisture grounds in our lightning arresters. We use a weatherproof fuse and carbon arrester mounted outside of buildings.

During wet and foggy weather the carbons appear to "sweat," and often ground the line. No water appears to have entered any of these arresters; the carbons simply seem to have absorbed moisture from the air.

Would boiling the carbons in paraffine prevent these troubles? Would the above treatment decrease the efficiency of the arrestor?

Some prominent switchboard manufacturers mention a jack and keys in their common battery switchboards for testing cord circuits. The above apparatus is mounted in the pilot rail and is used by the operators for routine cord testing. Could you publish a diagram of a typical circuit of this kind?

Boiling the carbons in paraffine will do no permanent good and will only put something more in the path of the lightning to be carbonized and form a ground. It is best to use a pair of sealed carbons. These are to be had of manufacturers of arresters for a very nominal charge. The process consists in assembling two carbon blocks with mica between them and thoroughly painting the edge with a special compound which prevents the blocks from separating, and also seals up the air space so that no moisture can enter. The writer gave three pairs of these blocks a forty-eight-hour soaking in water.

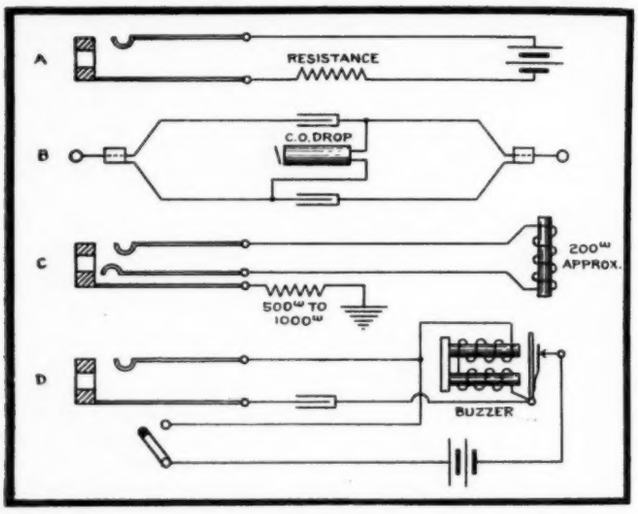


Fig. 1.

After wiping them dry they tested up not far from a million ohms. The nature of the sealing compound is not made public, but a camphor solution of pyroxiline is considered good.

The simplest circuit for cord testing is that used for revealing a defective cord. For a local battery or magneto board the circuit of Fig. 1 *A* is all that is required. Two dry cells in series are wired to a plain jack. Enough resistance is inserted at the battery to prevent damage to the cells in case a momentary short circuit occurs at the jack while inserting the plug, or in case a pair should be short circuited in the plug. To test, the operator plugs in with a plug whose cord is suspected, throws her listening key and twists the cord from side to side. If a broken connection or tinsel exists the making and breaking of the circuit will make a noise in the operator's receiver.

If the cord circuit contains condensers as in Fig. 1-*B*, these will prevent the flow of battery current in testing one of the two cords. The operator will then have to depend on blowing into her transmitter, listening for cuts and breaks in the sound.

If the board be of the common battery three-wire type the arrangement of Fig. 1-*C* may be used. The 500 or 1,000 ohm resistance from sleeve to ground is to co-operate with the cord circuit, and its value must depend on the nature of the switchboard to which it is adapted. Some boards may not need it at all. The 200 ohm coil draws battery current from

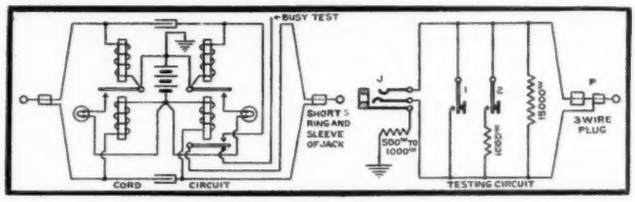


Fig. 2.

the cord and the operator by listening while bending the cord back and forth, can tell if the tinsel is cutting.

A circuit can be devised for detecting a wide open break, one whose ends can not be made to touch even momentarily.

The tone made by the apparatus of Fig. 1-*D* is useful in this way. If the tone be too loud it can be reduced by putting a condenser across the pair leading to the jack. The details of the jack depend on the type of board used.

To test the adjustment of cord and line relays of a common battery board a circuit shown in Fig. 2 is used. Briefly, it consists of a pair of wires with three bridges across it. A "dead short" key, 1; a pull-up key and resistance, 2; and a "back-down" resistance. The jack must be adapted to fit the cord circuit of the board in use. To test the supervisory relay of a cord, plug into the jack *J*. The supervisory lamp should be lighted. Pressing key 2 should extinguish the lamp, and releasing the key should light it again. The lamp should act in the same way with key 1. Key 1 shows whether the relay will "freeze" or stick, and key 2 tests its sensitiveness to a small current. The 15,000 ohm resistance allows a small leakage current to flow at all times, and the relay should be so adjusted as to fall back even though this current is flowing. The exact values of the 1,000 and 15,000 ohm resistances may be changed, as some people prefer to make the conditions more severe.

Inserting the plug *P* into the line jack will enable the line relay to be tested in like manner.

Approximate Transmission Test—Thermo-Electric Potential Scale—Specific Gravity Measure.

(1) What method is best to test transmission, comparative, in reference to a 32-mile standard No. 19 B. & S. gage cable; this to give approximate results, not necessarily fractions of a mile?

(2) Can you give me a graphic table showing thermoelectric

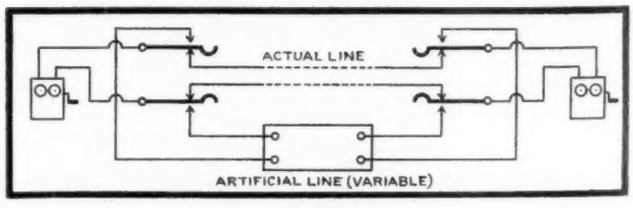


Fig. 3.

differences of potential in micro-volts, using lead as a base, or where to procure same?

(3) Please mention a formula to convert Beaumé degrees into specific gravity.

To test transmission an artificial cable must be used. This cable consists of an arrangement of resistances and capacities such that it gives the same transmission effect as No. 19 gage

standard cable. It should be divided into sections, each equivalent to one mile. To test a line, a circuit is set up as in Fig. 3. Conversation is carried on between *T* and *T*2, switching alternately between the actual line and the artificial line. The effective length of the artificial line is varied till no difference in transmission can be noticed on switching back and forth from one to the other. By counting up the number of miles cut in on the artificial line, the value of the actual line may be stated in terms of miles of standard cable.

A mile of standard No. 19 B. & S. gage telephone cable has a loop resistance of 94 ohms and a mutual capacity of .054 microfarad. An approximate artificial line equivalent to 30 miles of standard cable can be made up of four non-inductive resistances of 500 ohms each and a 2-M. F. condenser arranged as in Fig. 4. This is not available for use in the test above described because it can not be subdivided into miles.

An authoritative article fully describing an artificial cable, will be found in TELEPHONY, Vol. 17, p. 676.

2. A table giving the thermoelectric scale with lead as the

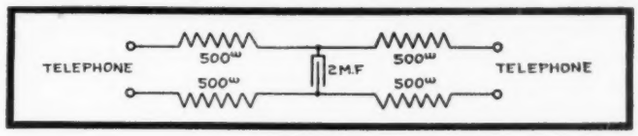


Fig. 4.

base is to be found in Foster's Electrical Engineer's Pocketbook.

3. A comparison of the Baume and specific gravity scales will be found in Foster's Electrical Engineer's Pocketbook under the heading "Baume and Specific Gravity Compared," in the section devoted to batteries.

In the Operating Field

Conventions, Southeastern Kentucky and Eastern Tennessee, Middlesboro, Ky., June 3; North Dakota, Minot, July 18, 19, 20

Another Myserious Disappearance—The Control of the Inter-State Company of Illinois.

At the beginning of the week it became generally known that holders of large blocks of the securities of the Inter-State Independent Telephone & Telegraph Company, operating a chain of exchanges and long-distance lines in Illinois, had disposed of a controlling interest in the property to Messrs. Harrison and Reynolds of Wauseon, Ohio, acting for parties unknown. It is generally supposed that the money was put up by Bell interests, although Harrison and Reynolds, it is understood, without making the definite statement, have endeavored to create the impression that the properties were bought for the Morgan interests. Some of the floating rumors, apparently with little foundation, name the Postal Telegraph Company as the purchaser. It is understood that the securities transferred were $1,200,000 of bonds, and a like amount of stock, with voting trust certificates representing the control. The price offered for the bonds is set at 60, but there is a rumor that H. H. Evans, the largest holder, got par for $400,000 worth of bonds, which he has held for some years, and also a large block which he recently purchased of Alfred Stromberg, they being necessary for the success of the deal.

Many people are inclined to ascribe the transactions to the Bell interests on the basis of a rumor that the transaction was carried out in a most niggardly fashion, $50,000 above the $1,200,000 having been turned back to the holders after the purchasers were assured of an amount sufficient to control the company, which was $1,192,000.

It is freely predicted that all minority holders are in line for a squeeze at the date of the next interest period. The company has paid interest on its bonds but not dividends. It is understood that there is a floating debt of about $50,000, of which $39,000 is held by H. H. Evans, and persons who have been watching the affairs of the company predict that this debt to Mr. Evans will be paid, thus leaving insufficient funds in the treasury to pay interest, and causing the company to default on its bonds preliminary to a reorganization which will be effected in the interests of the majority holders.

The Inter-State property is understood to have deteriorated, while the company is said to have imperfectly developed its territory, largely as a result of internal dissensions and a lack of agreement upon policy among the various holders represented.

The price said to have been paid for the bonds is considrably above recent quotations, which have ranged around 45. It is reported that the last transfer of a considerable block was made at 47½.

A report showing the principal holders and their sales gives the following: H. H. Evans, $425,000; Wagner, $140,000; C. B. Cheadle, $70,000, and the Watson Estate, through its trustee, $200,000.

It is reported that Mr. Cheadle, who has sought prominence in Independent telephone association matters in Illinois, and has interests in other Independent plants in that State and in Iowa, had, for three months, been advising holders of Interstate bonds to sell out at 60.

Discrimination Hearing Before Mississippi Railroad Commission.

Several telephone men, representatives of the Cumberland Telephone & Telegraph Company as well as the Independents, were in attendance at the meeting of the Mississippi Railroad Commission on May 17 in response to citations to show cause, if any they could, why the rates for service fixed by the Commission had been violated.

The Independents were the plaintiffs in this case. It came up several weeks ago, but hearing was postponed because of the fact that all of the parties at interest were not present. The Independents charged that the Cumberland company had been cutting rates in northeast Mississippi towns, in an effort to run them out of business at Booneville, Corinth and perhaps other places in that section of the State.

At the hearing the Cumberland representatives made counter charges, and showed to the satisfaction of the Commission that the Independents had been gulity of the very same thing they were charging against the Cumberland—that is cutting rates.

The complainant was withdrawn and the case was dismissed.

Ohio Business Picking Up—Long Distance Rate Prospects.

General Manager G. R. Johnston, of the United States Telephone Company, Columbus, Ohio, reports business over all long-distance lines of the company as well as at local exchanges good and increasing right along. This condition prevails under the present rates charged by the United States and the Bell, the latter of which are much lower.

The committee appointed by the Ohio Independent Telephone Association to confer with President Frank A. Davis of the United States company relative to rates, after holding

several meetings, is just marking time, as it were, to await developments June 1. It is confidently expected that the Bell company will upon that date raise its charges to the old rate, which will equalize those of the United States and the Bell. The change in the Bell rate will not be advertised, but will be placed in effect quietly, and it is believed that little will be said in objection by users of the service.

So until June 1 the committee will do nothing on the question of rates.

The annual meeting of the United States Telephone Company, which was to have been held in April, and later postponed until May 23, has been postponed again for a month. This action was taken because of the injunction suit brought in Cleveland to prevent the transfer of the stock to J. P. Morgan & Co. It is believed in Ohio that the suit will be disposed of by the time the month has rolled past.

Telephones Under Public Service Commission in New York.

After a three years' contest, jurisdiction over the telephone and telegraph companies in New York state is to be given to the public service commission. The amendments to the present law by which the new arrangement will go into effect have been passed by the Legislature and are now awaiting Governor Hughes' signature. There is no doubt but that he will sign the bills as it is known that he is strongly in favor of them. They will become operative September 1, 1910.

The law provides (Section 91) for adequate service, just and reasonable charges, and prohibits unjust discrimination and unreasonable preference. Every company is required to file its schedules of rates with the commission and may not change them without thirty days' notice to the commission. No free passes or franks are to be issued except to the officers and agents of the company and certain designated persons and corporations. The commission is given power to examine all books, contracts, etc., and to compel their production. An annual report to the commission is required. The commission is authorized to investigate all violations of law and the filing of written complaints with the commission is required. The commission is given power to supervise rates, rentals and service and to enforce such recommendations as it deems necessary concerning them. The commission is granted power to require connection between telegraph companies whose lines form a continuous line of communication or could be made to do so, the commission having power to establish just and reasonable rates and regulate the division thereof.

The most important section of the act, in its effect upon Independent telephony, is one that prohibits any company formed after September 1, 1910, from beginning the construction of its lines without first obtaining the approval of the commission and a certificate of public convenience and necessity. Before such certificate can be issued, a verified statement must be filed showing that the required consent of the proper municipal authorities has been obtained. Assignments of franchise rights of foreign corporations are prohibited and no assignments of or contracts affecting such rights are valid without the commission's approval except as collateral security. No corporation, except a telephone or telegraph company, may hold more than ten per cent of the total capital stock of any such domestic company. The approval of the commission is required for the issue of stocks, bonds, notes and other evidences of indebtedness running longer than twelve months, and such issues cannot be made except when necessary for the acquisition of property, the construction, completion, extension or improvement of facilities and service or the discharge or lawful refunding of the company's obligations. The company shall not, without the commission's consent, apply the proceeds of any such issue to any purpose not specified in the order. For other purposes than those enumerated, telephone and telegraph companies may issue stock, etc., without making application to the commission. The commission has no authority under the act to authorize the capitalization of any franchise, contract for consolidation, or lease.

Receiver Asked for Continental Company in "Friendly" Proceedings Arising from Internal Dissensions.

On May 24, former attorney general, Robert H. McCarter, representing Bernard M. Wolf and Max Koehler of St. Louis, obtained an order from Judge Rellstatt, in the United States Circuit Court at Trenton, N. J., requiring the Continental Telephone and Telegraph Company to show cause, next Tuesday, why a receiver should not be appointed upon the ground of insolvency.

The Continental company was incorporated in New Jersey last November with an authorized capital of $50,000,000, and an authorized bond issue of $25,000,000. Since its organization it has acquired all the $10,000,000 stock of the National Telephone Companies, which holds a controlling interest in important properties in West Virginia, and the Pittsburg and Allegheny Telephone Company, the Independent Union Company, of New York; The American Union Telephone Company, with headquarters at Harrisburg, Pa.; the Interstate Telephone Company, of Trenton, N. J., and other minor properties. A deal for the purchase of the Rochester Telephone Company was recently declared off.

For some time past it has been known by people in close touch with the Continental affairs that there was dissension in the management, the interests represented by John A. Howard, of Wheeling, W. Va., being in conflict with those represented by Max Koehler, of St. Louis, and his associates. It seems that matters this week reached a crisis which could only be solved by receivership proceedings, and that the future of the company depends upon the satisfactory solution of its problems in this manner, before further progress in its operations can be made.

A. K. Detweiler to Stand Trial at San Francisco.

When the bribery exposures were made in San Francisco in 1907 it will be recalled that agents of the Pacific Telephone and Telegraph Company and of the Home Telephone Company were accused among others, and some of the agents of the Bell company stood trial and were convicted. But A. K. Detweiler, after being indicted left town suddenly and has been absent ever since until May 3, 1910. He then surrendered in San Francisco and will endeavor to have the indictments set aside.

D. M. Neill Proposed for Lieutenant Governor of Minnesota.

Hon. D. M. Neill, of Red Wing, Minn., is known to telephone men as the manager of what is probably the best system of its size in the country. His capacity in large affairs and sound business judgment have been many times proven in his co-operation with Hon. E. H. Moulton in building up the great Independent system which covers his state. He has recently been in charge of the Independent system of Duluth, which is to be developed and extended.

His worth seems to be generally recognized, as is shown by the following abstract from an editorial in the Ortonville, Minn., Herald Star.

"There is an evident reluctance among the people to accept any of the several worthy gentlemen now being touted for the office of lieutenant governor. Doubt or suspicion has been cast upon nearly every name so far mentioned by either the friends

or the foes of some particular ism or hobby or fad, and the newspapers and the politicians have come to regard the situation as grave and the heretofore belittling office of lieutenant governor as being the possible key to republican success this fall. This being the case, and no well informed person doubts that it is the case, it is apparent that a wise selection is advisable and necessary. This seems to have been realized by an element that has not generally interested itself in the matter of formulating platforms or selecting candidates. The Federated Commercial Clubs of the state, a purely business organization has recently developed a commendable interest in this matter and has quietly proposed, in business circles, the name of the president of the Federation, Hon. D. M. Neill, of Red Wing, as a gentleman worthy of the honor and as one representing the conservative business element of the state, a clean man, successful and popular wherever known.

"He would make an admirable presiding officer of the senate and could be trusted to appoint committees that would give all interests a fair show. The Herald Star has no idea whether Mr. Neill could be induced to become a candidate or not, but should he allow the use of his name in this connection he will find many old friends in this city who would be glad to give him cordial support. As a resident of this city some years ago Dave was recognized as a good citizen, a successful business man, and staunch republican."

Mr. Neill was one of the speakers at the last banquet of the National Independent Telephone Association, and the sturdy tone of his talk is well remembered by those who heard it.

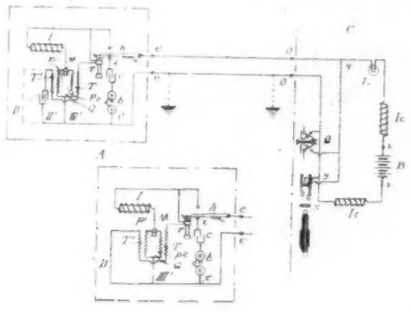
Work of the Patent Office

Conducted by Max W. Zabel

TRANSMITTER.

P. Stragiotti, Hurley, Wis., pat. 958,561, May 17, 1910.

In this substation telephone circuit, the transmitter *M* is of the differential type, as explained in previous patents of the same inventor, and has two induction coils *T* and *T'*, the transmitter operation being such that when the current is increased in the primary of the induction coil *T*, it is respondingly decreased in the induction coil *T'*. The current supplied the transmitter passes serially through the impedance coil *I*.



SWITCHING KEY.

L. A. Williams, Evanston, Ill., pat. 958,453, May 17, 1910, assigned to Stromberg-Carlson Tel. Mfg. Co., Rochester, N. Y.

This key is of the four-party line selecting type and has the ordinary ringing buttons, four in number, which are designed to occupy three positions, the normal, the indicative, and the ringing position. The construction is such that a spring normally tends to keep the plunger in its highest position and that the plunger can be depressed to the indicating position any time it is desired, without actuating the ringing spring. This is accomplished by having the insulating button for depressing the key slidable with relation to the insulating button which actuates the springs.

TELEPHONE SYSTEM.

E. C. Rodman, West Point, Ia., pat. 958,315, May 17, 1910.

The prime object of this invention is to provide a common battery system wherein the line is normally connected with a central battery, and the cord circuit is normally disconnected from it. It further aims to provide a system wherein the connection of a cord with the line breaks one leg of each line and establishes two closed loops. One of the loops local to the exchange and the other includes both of the connected stations. The loops are bridged at one point by the common battery, and at another point by an inductive resistance, preferably constituting part of the clearing-out signal devices.

INTERCOMMUNICATING SYSTEM.

E. R. Corwin, Chicago, pat. 957,869, May 17, 1910, assigned to Corwin Telephone Mfg. Co., Chicago.

This intercommunicating system is designed to provide a simplified circuit arrangement and improved trunk connecting facilities. It has at the switching station a relay and a key to bridge the relay across the trunk independently of the other apparatus. This relay controls a switch whereby the relay when bridged across the trunk maintains its own bridge after the key has been released until the relay is properly de-energized.

AUTOPHONE SYSTEM.

A. E. Stevens, Fall River, Mass., pat. 957,909, May 17, 1910, assigned three-fifths to S. H. Couch, Wollaston, Mass.

An automatic telephone system is disclosed herein which provides means whereby when two people are talking, one of the talking parties may connect a third party so that three or more can converse together. The patent also contemplates means for furnishing local battery to distant lines and common battery to short lines. It also provides intersignaling means for party line subscribers. Features relating to busy test and other service are too numerous to describe in detail.

TELEPHONE REPEATER.

P. Stragiotti, Hurley, Wis., pat. 958,560, May 17, 1910, assigned one-fourth to J. Vercellini and one-fourth to F. Marta, all of Hurley.

A telephone repeater circuit is illustrated herein in which it is claimed that humming or singing is eliminated. It consists of two induction coils associated with a local battery and a special duplex winding. The two induction coils of each line are associated each to each with two differential transmitters. This arrangement, it is claimed, eliminates the singing or humming.

SIGNALING APPARATUS.

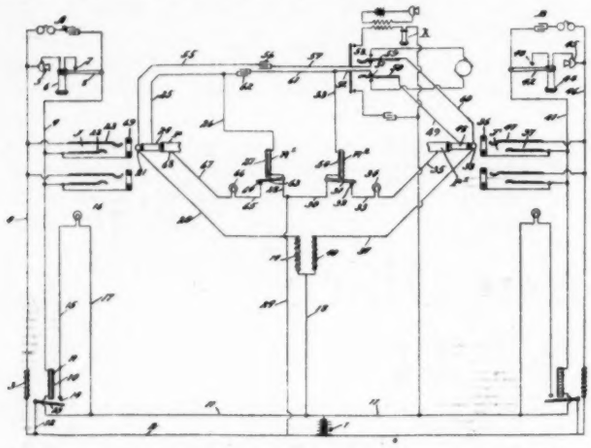
L. W. Carroll, Anamosa, Ia., pat. 958,224, May 17, 1910.

This party line system has a primary electric circuit, including a generator and a variable resistance device. There is furnished an electromagnet having a tuned vibrating armature which is directly connected with the variable resistance device. This is further provided with a second circuit having an electromagnet with a vibrating armature which is tuned in harmony with the first named armature. By means of different frequencies, several bells can be selectively rung at the same time.

TELEPHONE SYSTEM.

C. L. Goodrum, Atlantic City, N. J., pat. 958,627, May 17, 1910, assigned to P. C. Burns, Chicago.

A common battery telephone system is herein shown which has a three conductor plug *P*, of which the third, or sleeve contact 68, controls the supervisory signal. Impedance coils 13



and 40 are provided to furnish talking current to the tip side of the line and the impedance coil 3 furnishes the current to the sleeve side. A shunt circuit is provided around the line relay 10 to eliminate the calling signal when the plug is inserted.

TELEPHONE SYSTEM.

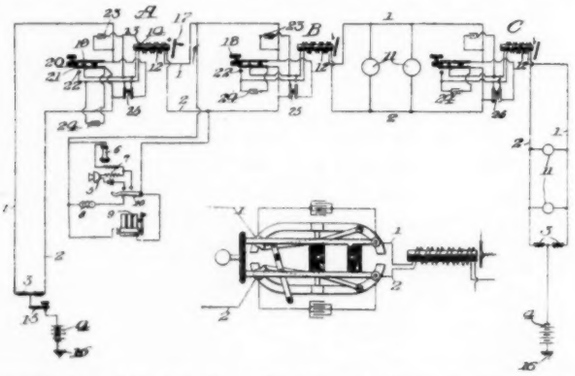
A. K. Andriano, San Francisco, pat. 958,067, May 17, 1910, assigned to Direct-line General Telephone Co., San Francisco.

An intercommunicating system is set forth in this patent having means for preventing another line from being connected to lines already in talking service, and therefore has means arranged to be set into engagement with the selected line and a circuit closer controlled by movable elements of the connecting switch. The circuit closer is adapted to close the break in the local circuit when connection is made with the line contact of its individual station, but to open the circuit when connection is made with another line contact. Means are also provided for closing this last break in the local circuit whenever a call is given.

SIGNALING SYSTEM.

O. T. Lademan, Milwaukee, Wis., pat. 957,973, May 17, 1910.

A signaling system for railway telephone service is described which consists of a non-inductive relay 12 at each of the stations *A*, *B* and *C*, which closes the local signaling circuit and



is operated by the key 18. The two windings of the relay 12 are so arranged that each line wire carries one of the windings. The relay is differential for metallic currents, but cumulative for currents traveling in parallel over the line wires 1 and 2 from the battery 4, and having the ground as a return. When signaling, the two line wires are used in parallel, but the telephone instruments are connected metallically and are uninfluenced by the relays 12, as their windings are non-inductive to the metallic talking currents.

MOUTHPIECE.

A. Bebout, St. Louis, Mo., pat. 957,404, May 10, 1910.

A portable telephone mouthpiece for auxiliary use is herein disclosed. It is adapted to be opened and removably applied to telephone transmitters of different sizes. When not in use it is readily reduced to compact form so as to be conveniently carried by the user.

ADVERTISING ATTACHMENT.

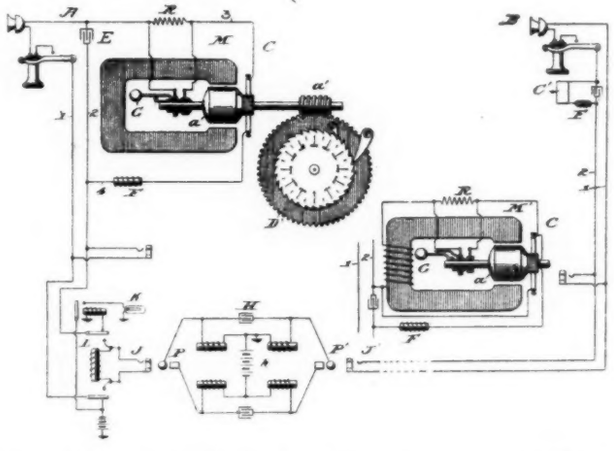
J. Kuhn, Pittsburg, Pa., pat. 957,067, May 3, 1910.

In this patent is disclosed a plate mounted on top of the wall telephone. The plate is mounted on a shaft which is connected to the receiver hook in such manner that when the receiver is on the hook, certain words indicative of the cost per message are shown, whereas when the receiver is off the hook, the reverse side of the plate is shown which contains an advertisement.

METER SYSTEM.

R. H. Manson, Elyria, O., pat. 958,145, May 17, 1910, assigned to Dean Electric Co., Elyria, O.

An elapsed time meter is set forth in this patent and consists of a motor *M* which is serially included with the line



wire 2 having a condenser *E* shunted around its terminals. This motor is set in operation when the receiver is removed from the switchhook and registers the time when the telephone is in service.

TRANSMITTER MOUNTING.

N. Pedersen, Genoa, Ill., pat. 958,167, May 17, 1910, assigned to Cracraft-Leich Electric Co., Genoa, Ill.

The transmitter mounting herein disclosed consists of a head having two mating members which substantially enclose the head and are secured thereto by means of a bolt and nut. Spring washers hold the members in any given angular position. The mating members fit into a dished member, to which they are fastened by screws, which at the same time hold the back cup of the transmitter in place.

TELEPHONE SYSTEM.

L. E. Hicks, Stinson, W. Va., pat. 958,248, May 17, 1910.

A step-by-step lockout system is illustrated in this patent having a mechanically rotatable contact and an electrically rotatable contact adapted to engage the first named contact at a predetermined point in its rotation. Means under the control of the electrically actuated contact are provided for locking the mechanically actuated contact, to send a call, except at a predetermined zero position.

In the Manufacturing Field

Telephone Fuses.

The American Electric Fuse Company, Muskegon, Michigan, is sending out a most interesting booklet describing in detail the fuses manufactured by this company. Embodied in the book are statements as to the value of the fuse on a telephone circuit, showing wherein a considerable saving is made by the use of good fuses; the value of having fuses correctly made, and then gives some pointers as to the manufacture of the particular kind of fuse produced by the American Electric Fuse Company.

Some interesting views are shown in the booklet, such as the company's general offices, the counting and testing room, engineer's laboratory, testers, manufacture of the fuses, shipping room, etc.

The following statements which are of interest to operating men are made under the heading "Caution":

"Telephone instrument fuses should be ordinarily one-fourth ampere capacity; almost never one-half ampere. A heavier fuse will not protect the telephone adequately. Never use a cable fuse on a fuse block at a telephone.

"Cable fuses are usually one ampere or two amperes capacity. Over five amperes capacity is dangerous in most cases. A cable is not so delicate as a telephone instrument and a one-ampere or two-ampere fuse is all right for cable use.

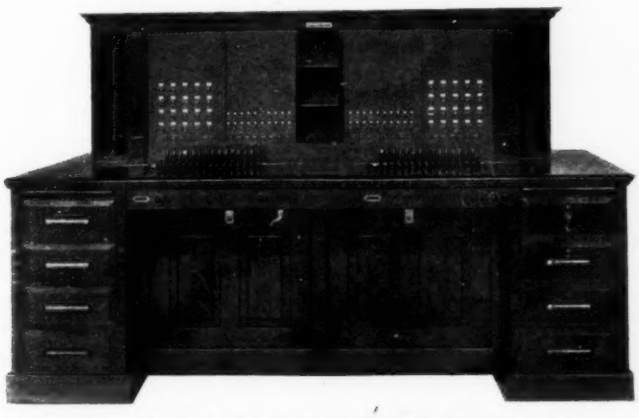
"For switchboard protection, the fuse should be one-fourth ampere capacity. The switchboard fuses are easily accessible, and it is better to have them burn out oftener than to take chances by using a larger capacity fuse."

The booklet is known as Bulletin No. 325 and will be sent to anyone interested upon application.

New Toll Board for Lewistown, Mont.

Among the most progressive operating companies of the Northwest is the Lewistown-Billings Mutual Telephone Company, with headquarters at Lewistown, Mont. Its business is growing and new equipment has to be added from time to time. The toll facilities were recently outgrown and a new two position toll desk has been installed.

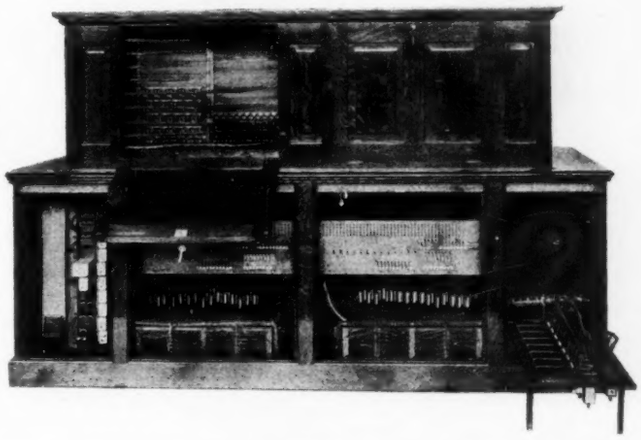
The desk is of quarter sawed oak with a golden oak finish, conforming in apepearance with the main switchboard. Ample desk room is provided for the record work which always falls



Front View of the New Lewistown Two Position Toll Desk.

to the toll operator, as well as stalls for the route books and toll ticket pigeon holes. Between the positions is a space for mounting a calculagraph. The face equipment of the board is finished entirely in bower barff.

Each position is wired for an ultimate of forty toll or farmer lines, of which twenty in each position are equipped. The drops are of the self restoring type and above each is mounted an individual transferable designation plate. In the two middle panels and within each reach of either operator, are located the two way trunks to the various positions of the main board. Each position is equipped with fifteen cord pairs, a strip of eight order wire keps, a master key for harmonic ringing on



Rear View of Toll Desk Showing Swinging Gates Upon Which Relays and Repeating Coils are Mounted.

the farmer lines, and the usual line and supervisory pilot lamp equipment. All keys, including the order wire keys, are mounted in steel key frames, the key escutcheons being flush with the surface of the keyboard.

The rear view of this board shows the manner in which the relays and repeating coils are mounted on swinging gates, making both sides of the strips easily accessible. The upper part of the gates is held in place during shipment by machine screws, but the design is such that after installation the gate maintains its normal position without fastening. When pulled over, legs automatically drop away from the top of the gate, and serve as a support.

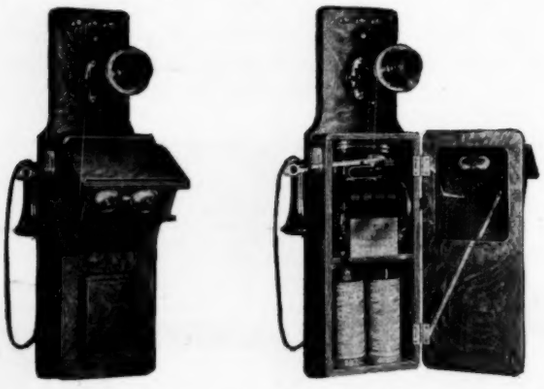
The toll board, as well as the balance of the equipment in this exchange, is the product of the Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y.

A New Model Magneto Telephone of the Common Battery Type.

The Kellogg Switchboard & Supply Company, Chicago, Ill., has just placed on the market a new model of magneto telephone sets. The new type is designed to combine the symmetrical outline and compactness of the common battery instrument with the simplicity and accessibility of the standard wall telephone. It occupies no more space than other styles and the transmitter arm does not project as far beyond the cabinet as in the standard compact set. Subscribers generally like the common battery type of telephone and the practical features of this new set will appeal to operating men for that reason.

The illustration shows the shape of the set with the arrangement of the apparatus. There are but three units to the cabinet, viz.: the backboard, the box and the lid. The upper part of the backboard is shaped similar to the common battery type, while the lower two-thirds widens to fit the box, built just as the regular compact magneto type but smaller. The generator shelf, fastening of hookswitch, coil and battery space is the same as the regular set. The writing shelf is placed at top of box lid. The ringer is set under the writing shelf, affording

protection to the coil ends when the door is open, yet being as accessible as in the regular telephone. The principal dimensions of the set are: length of backboard, 28 inches; width, 8 inches at widest part; width of box, 7⅛ inches; depth of telephone from backboard to shelf, 9¾ inches; depth of box alone, 3



The New Kellogg Magneto Telephone Set of the Common Battery Type.

inches; depth of shelf, 5¼ inches; extension of transmitter arm from backboard to mouthpiece, 9⅝ inches.

The cabinet has the standard Kellogg finish and all parts of the equipment are the same as used in the regular magneto sets.

Electric Storage Battery Company Opens New Sales Office.

The Electric Storage Battery Company of Philadelphia, Pa., just opened two new sales offices, one located at No. 729 Ford building, Detroit, Mich., and the other at 1424 Wazee street, Denver, Colo.

The increasing use of the "Chloride Accumulators" and "Tudor Accumulator" for central stations, telephone, and railway work and an enormous increase in the use of the "Exide" battery for electric vehicles, gas engine ignition, etc., has made it advisable to establish these offices, so that customers in adjacent territory will be better served. A stock of battery material will be carried in Denver from which orders can be promptly filled.

The addition of these officers as well as the "Exide" storeroom recently opened at 16th and Pine streets, St. Louis, very materially increases the facilities of this company in the west.

American Steel & Wire Company, Chicago, Ill., in its May issue of *American Wire Rope News*, publishes for the first time the figures of breaking strengths based upon the average of the different sizes and kinds of wire rope by actual tests upon a large number of specimens. American wire rope will hereafter be sold only under these new standards. The method employed in measuring the breaking strengths of different forms of wire rope has heretofore been based upon the individual wires in the rope.

An illustrated description of the Detroit river tunnel, by which it is expected to cut down the time between Chicago and New York to 16 hours, is the leading article in the issue.

The Lindsley Bros. Company, dealer in cedar poles and fir cross arms, of Spokane, Wash., announces the appointment of R. L. Bayne, formerly connected with the Valentine-Clark Company, as Eastern sales manager, with offices in the Monadnock Block, Chicago. Mr. Bayne succeeds Mr. G. L. Lindsley, who was forced to resign on account of ill health.

The H. B. Camp Company deserves considerable credit for some of the details of its exhibit of "Camp Duct" at the convention of the National Electric Light Association now being held at St. Louis, Mo. Prior to the opening of the convention invitations were sent out to all the persons on the company's mailing list inviting them to enjoy the hospitality of Messrs. R. P. Keasbey, eastern sales manager, and C. C. Baird, sales representative, at the convention booth.

Crouse-Hinds Company, of Syracuse, N. Y., the well-known manufacturers of electrical specialties, have removed their New York office from 25 Dey street to 30 Church street. Mr. F. W. Hawkins is in charge of this office.

Enochs Electric Company, of St. Paul, Minn., has recently gotten out three folders telling about their telephone specialties.

A New Book on Telephone Cords.

Alfred F. Moore, Philadelphia, Pa., has just issued a booklet describing and illustrating the standard telephone cords and cordage manufactured by this firm. Each type of cord is illustrated, and the illustration is accompanied by a tabulated description showing the code number; length; nature of covering, whether mercerized, worsted or silk; color, and price. Special illustrations show the standard types of cord terminals and plug end finish of switchboard cords to fit the standard makes of plugs.

The same booklet includes switchboard wire, jumper wire, lockstitch twine for sewing up switchboard cable, and rubber friction tape.

The booklet is decidedly creditable in arrangement and appearance to the firm which issues it, and to Mr. A. P. Bartram, manager of the telephone cord department.

The illustrations are of remarkably fine quality, being produced by the Ketterlinus Lithographing Company, Philadelphia, which has a high reputation for this class of work.

A New Tool for Threading Plugs on Switchboard Cords.

The switchboard repairman in every telephone exchange is familiar with the difficulties and inconveniences encountered in doing a good job of replacing the plug after a switchboard cord has been "cut back."

A simple device for doing this work has just been placed on the market. As shown in the illustration, it consists of a chuck for holding the plug supported by a frame and a handle for turning the chuck. To attach the cord to the plug, the plug is placed in the chuck and fastened by the thumb screw. The cord is then placed in position and held firmly in one hand while the crank is turned by the other hand. By this method there is but one twist or strain in the whole operation, while in the common method of turning the plug by hand the cord

The Eureka Plug Cording Device.

is relaxed and twisted anew each time a new hold or grip is taken on the plug.

The thumb screw catches the larger portion of the plug shank so the contact surfaces are not injured.

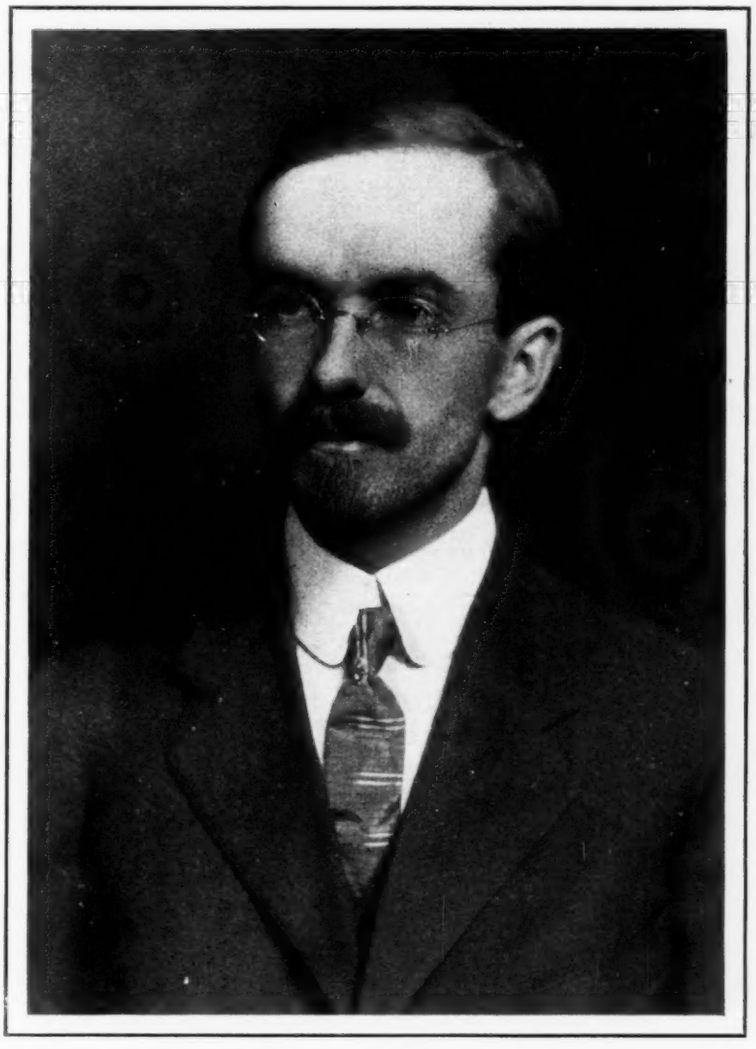
The device is manufactured and sold by the Aurora Telephone Tool Works, Aurora, Ill.

Pardee—An Up and Going Man

Among the men engaged in the manufacture and sale of telephone supplies, Frank W. Pardee is known as one of the leading "live wires" in the business. Everyone knows that the term "live wire" means in the world of business activity. To be designated as one shows that a man is up and going at all times. Such a man is Pardee. Look at his record!

Graduating from a technical school in 1896, he posted himself on advertising, and then became advertising manager for a western magazine. Two years of that work laid the foundation for his faith in the value of advertising, in which he has been a believer and one of its strong advocates ever since.

Appreciation of judicious advertising is not his only strong point. He is a "good mixer." He knows men—how to judge them and just how to talk with them to make them warm up and enthuse over any project he may be boosting. Then he has good judgment, a practical mind, but can see a joke every time. Last, but by no means least, he has confidence in himself and in his ability to "produce the goods." To succeed a man must have faith, great faith, in whatever undertaking he has in mind. Pardee has that faith, and Pardee has succeeded. And greater success lies ahead of him. He deserves it.



Mr. Frank W. Pardee.

To understand why, see the results of his efforts with the Chicago Telephone Holder. This was manufactured by the Chicago Writing Machine Company, and as a result of Mr. Pardee's exploitation of it, the company was swamped with orders for the holder. Then the Adjustaphone was brought out, and Pardee introduced it to the public. **Result:** Orders for Adjustaphones poured in so fast that the company had difficulty in filling them. There were very few people engaged in the telephone business at that time who didn't know about this article, so well did Pardee do his work.

Then in June, 1904, Frank B. Cook found he needed a manager to look after his rapidly growing business. He wanted a "live wire." Naturally he picked Pardee. Then the business began to boom. How it did grow! First from one floor to two floors, then from two floors to three floors, and to three and a half floors in 1907 when Mr. Pardee resigned. And the foundation was solid, for it has kept on growing until now it is one of most prosperous of manufacturing companies.

As usual this resignation was for the purpose of going "higher up." He became treasurer of the Durant Electric Supplies Company of Chicago. Here was an opportunity to bring into play all the ideas gained in his selling, advertising and manufacturing experience. Who has not heard of "Ironite?" This was but one of the successful specialties which he brought out, all of which are known to telephone men all over the country.

In 1908 Mr. Pardee struck out for himself, handling the products of Alfred F. Moore, the Electrose Manufacturing Company, and the Rock Island Battery Company, all of which are well known to telephone men. Then he produced the "Paragon" specialties, and the Paragon battery box, Paragon ground cone, Paragon self-tying knob are all in successful use.

Such work as Mr. Pardee's is bound to attract attention from more than the buyers.

Again the call came to go higher up and on May 1, this year, he left the city of Chicago where all his successes had been, to go to Buffalo. The L. M. Ericsson Telephone Manufacturing Company wanted a general manager and said to Pardee "Thou art the man." Hence he is now vice-president and general manager of that firm.

Everybody likes Frank Pardee and is wishing him good luck in his new work. His cheerful optimism, perennial good nature and willingness to help everybody have made him hosts of friends wherever he goes, and they all hope and believe he will make the biggest hit of his life with the Ericsson Company. That he will work his head off to win success goes without saying for Pardee never does anything in a half hearted way. That is one of the characteristics of "live wires." Pardee is with a splendid company, for Ericsson apparatus has won a high place in the telephone field, and it is certain he will materially add to its success.

The Everstick Anchor Company, St. Louis, Mo., has recently gotten out a very clever folder advertising the Everstick Anchor, under the title of "A Moving Picture of the Time it Takes." It shows the operations of boring, installing and expanding as performed by one man. A clock at one side shows the time it takes, the time being nine minutes for the complete installation. On a separate sheet facts are given as to the strains that Everstick anchors will safely hold.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

F. P. LEWIS of the Southern New England Telephone Company at New Haven, Conn., has been appointed general agent of the company.

MR. E. A. CHENERY, superintendent of telegraph of the Missouri Pacific Railroad, St. Louis, has been elected president of the St. Louis Railway Club.

H. R. LYONS, president of the North Dakota Independent Telephone Company of Fargo, is at present in Rome, Italy. Mr Lyons is making a tour of the Old World.

W. W. RYDER has been appointed general superintendent of telegraph for the Toledo & Ohio Central Railway and the Zanesville & Western Railway with headquarters in the La Salle St. Station, Chicago.

MR. W. S. FENDER has been appointed an assistant superintendent of telegraph of the Southern Pacific Railroad, with headquarters at San Francisco. He will have charge of the telephone equipment and such portions of the telegraph service as may be assigned to him.

MR. JOSEPH L. LILLICH, formerly chief engineer of the Michigan Home Telephone Company of Detroit, has entered the commercial engineering department of the New York Telephone Company at Buffalo. Before going to Detroit Mr. Lillich was associated with Mr. Chas. H. Ledlie, consulting engineer of St. Louis.

WILLIAM R. McGOVERN, chief engineer of the Wisconsin Telephone Company, lectured before the engineering classes of Marquette University at Milwaukee, Wisconsin, Friday afternoon, May 21, on the "Engineering and Construction of a Telephone System."

MR. A. T. HOLLENBECK has been appointed superintendent of telegraph of the Chicago Great Western Railroad. Mr. Hollenbeck began his telegraph service in May, 1888, as operator for the North American Telegraph Company at Fond du Lac, Minn. After a year and a half in commercial work he entered the railway field as operator for the Chicago Great Western, then called the Chicago, St. Paul & Kansas City. During the next three years he occupied the positions of cashier, wire chief and manager in the telegraph service of that railroad. In 1893 he was made chief clerk in the telegraph department which position he held until his recent advancement.

OBITUARY.

HORACE F. PALMER, formerly district manager of the New York Telephone Company at Glens Falls, New York, died on April 25. He was 39 years old. Mr. Palmer was graduated from the Warrensburgh academy and from the Albany Law School in 1895. He gave up the practice of law three years ago to take the position of manager of the Glens Falls office of the Hudson River Telephone Company, which has since become merged into the New York Telephone Company.

NEW COMPANIES.

WINDOM, IND.—Otto E. Waldrip, secretary, Dubois; John F. Braun, vice-president, Shoals; Peter Fuhrman, president, Shoals; and Christopher Braun, treasurer, Shoals, are the incorporators of the Shoals and Dubois Telephone Company. The company is capitalized at $1,000.

ESTO, KY.—The Russell Spring and Columbia Telephone Company has been organized with a capital stock of $1,000. The incorporators include B. C. Burt, A. H. Bullard and S. B. Collins.

PINE KNOB, KY.—The Union Telephone Company has been incorporated with a capital stock of $500. Ed. Shain, Lon Yung, Dee Sapp, E. Murphey and others are the incorporators.

NORTHLAND, MINN.—The Banner Rural Telephone Company has been chartered by the secretary of state. The company is capitalized at $10,000, par value of shares being $20. A. J. Hilden is president, Aaloph N. Anderson, secretary and treasurer, both of Oslo, and Thos. McCoy, of East Grand Forks, Minn., vice-president.

AUGUSTA, ME.—The Magma Company, recently incorporated in Augusta, Maine, will carry on an extensive telephone business in connection with its other purposes. The incorporators of the company are: Lewis A. Burleigh, M. F. Sheehan, Augusta; E. M. Leavitt, Winthrop, Me.

AUGUSTA, ME.—The Queen Issues Company, incorporated by E. M. Leavitt of Winthrop and M. F. Sheehan of Augusta and others, will conduct a telephone business in conjunction with its other purposes.

AUGUSTA, ME.—The Golden Rule Mines Company, incorporated by Gardner M. Parker, Jr., Gorham, Me., Charles M. Drummond, Portland, and others, will construct telephone lines and conduct a telephone business.

BAILEYS, N. C.—The Merchants Telephone Company was chartered by the secretary of state with a capital stock of $10,000. S. C. Wells, H. B. High and others are the incorporators.

CARRINGTON, N. D.—The Haven Telephone Company has been incorporated by P. C. Peterson, Albert Roseman and R. S. McIntyre, with a capital stock of $15,000.

LANGDON, N. D.—The Langdon Waterloo Telephone Company, incorporated by J. J. Mahoney, C. W. Toews, C. Spenst, C. Krahn and A. W. Toews, has been chartered by the secretary of state. The company is capitalized at $6,000, par value of shares being $60.

LOMA, N. D.—The Gordon Farmers Telephone Company has been organized by John Watz, Fred Heimbecker, A. J. Lunde and others. The capital stock is $7,000.

WALDEN, N. Y.—The Walden Telephone Company was recently incorporated by C. Fred Fowler, A. J. Fowler, Joseph Oliva, William G. Decker of Walden; F. M. Weed, Newburgh; J. M. Fowler, Kingston. The company is chartered with a capital of $30,000, and for a period of 50 years.

ERICK, OKLA.—The Erick Farmers Telephone Company has been organized by W. H. Morgan, Joseph Whitehead and James Richardson, and chartered by the secretary of state. The company is capitalized at $3,000.

LENAPAH, OKLA.—Geo. A. Elrod, A. T. Rogan, J. M. Holmes, C. M. Wakefield, of Lenapah, and M. W. Brown, Coffeyville, Kan., are the incorporators of the City Telephone Company. The company has been chartered by the secretary of state with a capital stock of $1,500.

RED OAK OKLA.—The Red Oak Telephone Company has been chartered by the secretary of state with a capital stock of $2000. The incorporators are R. A. Welch C. A. Sturgeon and I. C. Talley.

SALINA, OKLA.—The Salina Telephone Company, of which Geo. Bullen, Spavinaw, Okla.; J. D. Colvard, Salina; W. C. Billings, Spavinaw, and I. O. Deckworth, Pryor Creek, are the incorporators, has been chartered by the secretary of state. The company is capitalized at $2,000, par value of shares being $25.

KENNARD, PA.—Articles of incorporation have been filed by the Kennard Telegraph & Telephone Company. The capital stock is placed at $10,000, par value of shares being $50. T. C. Canon, J. E. Stevenson, James M. Ray, A. C. Minnis and Oscar Ray, as treasurer, are the incorporators.

TREXLERTOWN, PA. (Lehigh Co.)—Silas G. Croll, John Y. Schultz, Philip Moatz and Lewis Lichenwalner, as treasurer, are the incorporators of the newly chartered Trexlertown Telephone Company. The capital stock is placed at $5,000, par value of shares being $25.

ALGOOD, TENN.—The Algood Home Telephone Company has been incorporated with a capital stock of $500. The incorporators are G. E. Pennington, R. C. Bookman, D. C. Whittaker, J. A. Judd and H. L. Harris.

NASHVILLE, TENN.—The Algood Home Telephone Company, Limited, Putnam county, with a capital stock of $500, has filed articles of incorporation. The incorporators are G. E. Pennington, R. C. Bootman, D. C. Whittaker, J. A. Judd and H. L. Norris.

NEW CASTLE, UTAH (Iron Co.).—The New Castle Telephone Company has filed articles of incorporation. The capital stock is placed at $5,000, and the officers are T. W. Jones, president; John Tullis, vice-president, and R. M. Gillis, secretary and treasurer.

BRONX, WYO. (Uinta Co.)—The Green River Valley Telephone Company was incorporated by W. S. Scott, R. T. Albert, D. H. Scott and D. H. Johnson, all of Bronx. The company is capitalized at $2,500.

FINANCIAL.

WOODVILLE, OHIO (Sandusky County)—The Woodville Home Telephone Company has increased its capital stock from $10,000 to $25,000. Joseph L. Herman is president and Edmund L. Baker secretary of the company.

BEATRICE, NEB.—The Railway Commission, it is reported, has granted the Johnston County Telephone Company permission to lower telephone rates in Vesta and Elk Creek. The service rates are, business, $1.50; residence, $1.25; four-party, residence, $1; farm line service, $1.25.

ALBANY, N. Y.—The New York Telephone Company, the corporation into which the Central New York Telephone & Telegraph Company and other Bell companies were merged about four months ago, has increased its capital stock from $100,000,000 to $125,000,000, and a certificate to that effect has been filed with the Secretary of State at Albany.

STRATFORD, WIS.—The Stratford Telephone Company by vote decided to increase its capital stock by $2,500. Connections will soon be made by the company with the village of Halder.

FRANCHISES.

CORNING, CAL.—A franchise has been granted to Joseph Tait, representing a new telephone company to be incorporated, for the construction and maintenance of a telephone system.

DEERWOOD, MINN.—The Deerwood and Bay Lake Telephone Company has been granted a franchise for the construction, operation and maintenance of a telephone system in Deerwood. The franchise extends over a period of 20 years.

LEXINGTON, N. C.—The Independent telephone company, which owns the exchanges in this part of the state—including Lexington—and which built a line into Salisbury some months ago, has been granted a franchise by the Spencer aldermen to put in five pay stations for five years. As in the Salisbury case, the Bell people fought this last application of the Independents, and the matter has been hanging fire for months. Finally, however, the Spencer aldermen concluded that they would admit the Independents and took a vote without even allowing the subject debated. Thus another town is added to the long list served by these Indepenent companies.

HIGGINS, TEX.—A franchise has been granted to a new company known as the Home Telephone Company, which is chartered as a Texas corporation, to construct and maintain a system in this place. The company is composed of F. N. Carmichael, L. L. Sebits, M. W. Hays, F. M. Henwood, A. M. Winsett, E. R. Boddy, N. W. Hudson, L. C. Kelley, Henry Frass, C. A. Lockhart, and A. U. Young, of Higgins, and John Raynor, John Gravey, J. H. Hopkins, Chas. Swindall and L. B. Collins, of Woodward, Okla. The company proposed to construct a system in Higgins, making it cable in the business portion. A. M. Winsett is president of the company, and L. B. Collins, secretary and manager.

CONSTRUCTION.

COUNCIL BLUFFS, IA.—The council Bluffs Independent Telephone Company is planning many extensions to its system for this year. The cost will be approximately $100,000. The most important extension to be made is a line connecting this system with the system of the St. Joseph, Mo., Home Telephone Company.

McPHERSON, KANS.—The McPherson Telephone Company has purchased a new switchboard which will be installed and ready for operation by fall. The company will make many other improvements in line with the new board to insure the patrons of this service the best of service.

COLLY, KY.—The Letcher County Home Telephone Company makes the announcement that it will begin the construction shortly of a telephone line from Sergent via. Vilas and Wright to Bentley, Ky., where connections will be made with the new Elkhorn Valley Telephone Company's lines.

GLASGOW, KY.—The Home Telephone Company which recently took charge of the Mutual Telephone Company at Knob Lick, announces that the entire southern part of the state will be developed and improved. The Mutual company had over 300 miles of wire in Monroe company, and is a valuable asset to the Home company of Glasgow.

KEARNEY, NEB.—The Midway Hotel has signed a contract with the Kearney Telephone Company for a private branch exchange system in the hotel, to be connected with the exchange of the telephone company. The Kearney Telephone Company has been making rapid progress and giving its patrons good service.

HIGGINS, OKLA.—The Home Telephone Company is installing a new system in that place and equipment has been ordered.

FILLMORE, MO.—The Mutual Telephone Company is having new telephone poles set along its routes and will soon place all its wires in cable.

GEORGETOWN, TEX.—President J. M. Daniel of the Georgetown Telephone Company reports that a site has been purchased whereon a new exchange will be erected for the company.

POUND, VA.—It is reported that the Pound Home Telephone Company has secured rights-of-way for a line connecting Pound and Flat Gap, a distance of 20 miles.

NEKOOSA, WIS.—The Rudolph Telephone Company will add about 11 miles of line to its system very soon. Construction material has been purchased, it is understood. One line will be built into Sigel.

ELECTIONS.

PRINCETON, ILL.—Elmer Sapp of Princeton was elected president of the Bureau County Independent Telephone Company recently. Other officers are, Aaron Dunbar, vice-president; Elmer Sapp, general manager; S. S. Harris, secretary; C. V. Field, treasurer. Directors are: William Keegan of Spring Valley; Elmer Sapp, Princeton; Dr. W. C. Griswold, Princeton, and C. V. Field, Princeton. The details of merging the Spring Valley Telephone Company were completed at this meeting. The stock was purchased by the Bureau County company about two years ago but the two companies were only recently merged.

HANNIBAL, MO.—At the annual meeting of the Miller Township and Hannibal Telephone Company held recently the following directors were elected: L. E. Frazer, George W. Pine, L. C Hendren, Samuel Turner and John A. Miller.

MERCER, PA.—The annual meeting of the Blacktown Telephone Company of Springfield township, Mercer county, was held recently and the business for the year was found to have been very satisfactory. The former officers were re-elected. This company now has over 200 instruments and over 100 miles of wire in use.

MISCELLANEOUS.

MARMADUKE, ARK.—The Independent Rural Telephone Company and the Gainesville Telephone Company made a deal consolidating the two companies. In the future the Gainesville system will be operated by the Independent Rural Telephone Company. The deal gives the Rural company a direct line on their own wires to practically all the western part of this county, besides Paragould, Halliday and a number of other neighborhoods in and around Marmaduke.

POMONA, CAL.—The Home Telephone Company of Chino has passed into the control of the Pomona Valley Telephone and Telegraph Company, through purchase. This gives the telephone users of the Pomona Valley free service over a greatly extended territory.

GOSHEN, IND.—The Home Telephone Company of Fort Wayne, Indiana, has completed plans for the construction of a new toll line to Goshen, via Ligonier, to connect with the South Bend toll lines.

ELSMORE, KAN.—The Elsmore Telephone Company, which, up to the present time, has made connection with Elsmore through the Katy Telephone Company, is installing an exchange of its own in Elsmore.

HUTCHINSON, KAN.—A short-circuited electric power wire in an alley between the court house and county jail came in contact with a pole supporting telephone wires and set fire to the pole. The wire came in contact with the pole about 6 feet from the top and burned it in two.

GLASGOW, KY.—The Home Telephone Company purchased the stock of the Mutual Telephone Company of Metcalfe county and will operate the plant of that organization in connection with its own. The Glasgow company recently increased its capital stock, and is making many improvements to its system.

WHITESBURG, KY.—An Independent telephone company is being formed at this place for the purpose of building a telephone line from Elkhorn Creek to Pound, Va. This is reported to be the first Kentucky-Virginia connection in that section of the country. The line will be considerably extended later.

MASON, MICH.—A new farmers telephone line is being constructed in this vicinity to be known as the Cook, Chase and Myers line. It will connect with the Citizens Telephone Company.

MONETT, MO.—The telephone exchange of the Bell Telephone Company located in Wentworth was destroyed by fire a short time ago. A new board was immediately ordered and within a few days after the damage service was restored.

GASTONIA, N. C.—An exchange has been opened at Maiden, Catawba county, by the Piedmont Telephone & Telegraph Company. Sixty-five telephones have been connected, some of which are rural. James A. Shuford, manager of the Lincoln exchange, will manage this exchange also.

GEDDES, S. D.—The Dakota Central Telephone Company suffered extensive loss through fire which destroyed the exchange building and several more, recently.

VALLEY, N. D.—The normal school, located at this place, is to be entirely fitted with an intercommunicating telephone system, with connections with the local system. All the rooms in the entire building will be connected with the main offices, where a switchboard will be located. At present a total of 50 telephones will be installed. The Valley City Telephone Company will install the system.

PENDLETON, TEX.—The telephone exchange at this place has again changed hands. It was sold to Jennings & Son by S. G. Garth for a consideration of $5,400. The intention of the purchasers is to put the exchange in first-class order.

SPOKANE, WASH.—The Coeur d'Alene Indian Reservation is soon to be equipped with many modern improvements, among which is a telephone system. William M. Masi, Jr., of Spokane, is president of the Coeur d'Alene Indian Reservation Settlers' Association which is carrying on the work.

FREISTADT, WIS.—The Freistadt-Kirchayne Telephone Company, which recently took control of the Grafton, Wisconsin, telephone system, has now purchased the entire system of the Mequon Telephone Company.

MONARCH, SASK., CAN.—A representative of the government telephones will meet with rural representatives from this district for the purpose of taking up the matter of constructing rural lines into that section.

UNDERGROUND.

WAUSAU, WIS.—An ordinance requiring all telephone, telegraph and electric light wires in the city to be placed in underground conduits was recently passed by the city council.

TOPEKA, KANS.—The city council is soon to consider the matter of adopting an ordinance requiring all electric, telephone and telegraph wires in the city to be placed in underground conduits.

GRANTS PASS, ORE.—The city council has granted the Pacific States Telephone & Telegraph Company authority to lay its wires in underground conduits, on the main streets, and this will be done almost immediately.

In the Rural Line Districts

Carl Hollopeter took charge as "hello girl" of the Iuka telephone exchange yesterday morning. J. E. Buckles will move to St. John in a few days, where he has accepted a position in a garage.—*Iuka (Kan.) Hustler.*

The employees of the McPherson Telephone Company yesterday afternoon were invited by turns to the cool rooms of the Kandy Kitchen and there treated to ice cream and cool drinks. In the evening the night workers were also accorded this courtesy and a cheerful "Hello?" and number has been the result since.—*McPherson* (Kan.) *Republican.*

The Big Cabin Telephone Company, which has had its switchboard in here about four months, has many patrons and is constantly adding to the number. R. L. Lay of Big Cabin is general manager.—*Big Cabin Letter in Vinita* (Okla.) *Chieftain.*

Friendly notice: If the people who are on the same party telephone line with us can conveniently get through with their conversation by that time, we'd like to use the instrument for a few minutes next Monday evening.—Pod Gaston. —*Beloit* (Kan.) *Times.*

At a meeting of the Harwood Township Telephone Company, Odin Henry was employed as night operator. He is the night policeman and the company in this manner not only gets night service, a thing it has not formerly had, but gets it very cheap.—*Ludlow Dispatch in Champaign* (Ill.) *News.*

A change is soon to be made in the management of the Bell telephone station at this place. Mrs. Quillen and daughter are to move back to her farm, for a time, at least, and the position vacated will be filled by a lady from Salem.—*Elk Creek* (Neb.) *Herald.*

A number of parties of Hess and Elmer, among whom were T. J. Moody, T. D. Wilson, Bob Briscoe, W. W. Schrimsher, W. O. Hill and Sam Banks, were here Tuesday to confer with E. B. Jeffrey, manager of the Leger & Chickasha Telephone Company relative to their lines. Jeffrey had forgotten his appointment and was out hunting when they arrived.—*Altus* (Okla.) *News.*

Mr. Simmons, our new telephone man, is proving himself to be the right man in the right place. He has added several new boxes to his exchange, and our lines are kept in first-class order and we naturally feel proud of him.—*Jesse Letter in Hillsboro* (Tex.) *Mirrow.*

T. C. Houtchin, the new telephone man at Tedda, seems to be a practical telephone man.—*Tedda Correspondence Minco* (Okla.) *Minstrel.*

The Quaker people west of us are erecting a telephone line to connect with ours at Tom Mendenhall's. Tom is assisting with the construction.—*Liberal* (Kan.) *News.*

The China Springs Telephone Company have made quite an acquisition lately and Judge Joe Hawkins, our popular justice of the peace, and S. M. DeHay, the mayor of Hog Jaw, have built a line from Hog Jaw connecting with China at Erath, which will be a great help to that community.—*Erath Correspondence in the Waco (Tex.) Tribune.*

Two telephone workmen were encamped near Udall. They had a nice tent with a stove in it, and plenty of blankets, and were prepared to have a good time, while the tempest rages loud and long and the stormy winds do blow. They were asleep the other night, and having the best kind of a time, dreaming all kinds of pleasant things, and that Kansas is a great state, when the tent caught fire from the stove-pipe, and their whiskers were burned off, and they were scorched in so many places that they had to stand in the creek the rest of the night to cool off. The worst feature of the whole business was that when they went to town everybody gave a good imitation of a horse laughing.—*Emporia (Kan.) Gazette.*